PERCEPTIONS OF INSEPARABILITY:

A HEURISTIC RESPONSE TO THOMAS BERRY'S CALL FOR CONNECTION

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By

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ABSTRACT

This dissertation represents my heuristic response to cultural and ecological historian, Thomas Berry's (1988, 1999, 2006) multi-dimensional call for connection to the Earth. The term, *Heuristic*, defined as "enabling a person to discover or learn something for [oneself]" (www. Oxforddictionary.com) describes a journey of learning undertaken out of a desire to live more justly and sustainably on this planet. My inquiry began with a search for the foundational meanings underlying Berry's statement: *Humans must undertake a radical shift in consciousness in order to come to the realization that the Earth is a Communion of Subjects and not a Collection of Objects* (www.thomasberry.org). It led to a holistic exploration of academic study and lived experience in the realms of evolutionary science, quantum theory, depth psychology, Indigenous wisdom, and contemplative practice. It resulted in a shift in consciousness that strengthened my connections to human and other-than-human inhabitants of the Earth, added depth to my own story, and provided understandings about the inseparability of all life from a number of perspectives.

This work will contribute to the body of educational literature that explores the integration of qualitative Place-based, Arts-based, Narrative, and Contemplative ways of knowing with rigorous scholarly research. I intend to apply the holistic learning gleaned from the integration of the scholarly and participatory components of this research to the development of future pedagogy that enhances the understanding that human beings are inseparably connected not only to our human ancestors, but to the other species, and to the ancient energies of the Earth as well.

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for me unique ways of connecting to the collective energies of like minds towards the pursuit of authentic relationship with the Earth.

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PREFACE

The place of our calling is where our deepest gladness and the world's hunger meet.

--Frederick Buechner, 1973 (as cited in Plotkin, 2003, p. 39)

In the 1980's, mathematician Brian Swimme was troubled by the conditions of disconnection in the Western world, and he was told that cultural and evolutionary historian, Thomas Berry was the best hope for the future of humanity. When Swimme met with Berry, the older man told him that at this critical time, when the Earth's biological systems are being devastated by human actions, Western humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects. Swimme's first meeting with Berry evolved into a thirty-year collaboration of science, philosophy, and cultural studies, which the two men and those who have followed in their footsteps call *Cosmology*. Three decades after the initial meeting of Swimme and Berry took place, I began studying their work, and from the first time I encountered it, the grammar teacher in me became intrigued with this often-quoted "communion of subjects" statement of Berry's. Consequently, I began studying the multi-dimensional strains of thought underlying it, and I began an inquiry into its meaning from several perspectives. The result is this dissertation.

As a woman, scholar, and educator, I have undertaken this work as a response to an inner call to experience a fuller reality and a deeper connection to the Earth and its inhabitants. Although it is written as a scholarly inquiry that is carefully referenced by academic sources, at the same time, it is an account of my personal story at this point in my life and my career. It draws on past experiences, is

attuned to present moments, and it embraces the future —professionally and personally. As a source of academic learning, this study has opened up new dimensions of what I have always known intuitively is my lifelong calling and my deepest gladness—that of an educator. It has also provided for me a theoretical and experiential roadmap by which to explore ways of addressing what I believe is a deep hunger in the Western world—the hunger for meaningful education which integrates the intellectual, physical and spiritual needs of our students with the basic needs of all other Earthly beings, human and other-than-human. As a source of motivation for undertaking a shift in my own consciousness, this exploration has connected me to the energies of the Earth in ways that I would have never imagined when it began. I am a different person because of it.

I have found in the investigation of the ideas of Thomas Berry and those who have influenced and been influenced by him a great source of knowledge and wisdom. I have used the study of Berry's cosmology as a personal global positioning system by which to expand my comprehension of the wholeness of the world from the multi-dimensional perspective of what Berry (1999) calls the *New Story* of the Universe, the Earth, and the individual. But no matter how many books I have read, I have learned that it is not enough to just know the story that Berry tells! A scholarly study of his *Communion of Subjects* orientation alone is incomplete. One cannot authentically understand the story unless one participates in it, and it becomes one's own. Naturalist, John Muir's simple statement explains the difference: "No amount of word-making will ever make a single soul to know

mountains…One day's exposure to mountains is better than carloads of books…All that is required is exposure, and purity of material… "(Muir, 1938, p. 95).

Integral to my academic research has been my own experiential immersion into the mysteries of the other-than-human world and their connection to the processes deep within my inner being. There have been many parts to this study, and each of them has in its own way mirrored the whole; but the whole has become much greater than the sum of its parts. The multi-layered lessons of Thomas Berry have become inseparably woven into my personhood, and I have begun acting on them by integrating them into my own unique style of teaching. If it is true, as Parker Palmer (1998, 2007) states, that we teach who we are, then my students of the future will meet an educator who has experienced and hopefully will continue to experience a consciousness shift towards an integral connectedness to the Earth.

I recognize that the inclusion of my personal experience both enhances and limits my academic research, depending on the ontological and epistemological perspectives of the person who is reading it. As an individual who believes that connection and compassion are essential educational values, I realize that those who share my convictions may find my work more meaningful than those who come from a different pedagogical stance. And as much as I would like to call my research an entirely non-anthropocentric, Earth-centered process, I am limited by the fact that I am human, and I have articulated and represented my conscious reflections in human language. Because my research experience cannot adequately be expressed in words alone, however, I have also chosen to represent the totality of my work in a hand-crafted artistic work that is symbolic of a mandalic journey of self.

My written work is composed of an introduction to the cosmology and educational mandate of Thomas Berry; an explanation of the research process that I utilized; an in-depth exploration of what I call Berry's *Cosmogenetic*, *Holographic*, *Inscendent* and *Non-Dualistic* lenses; an explanation of the metaphorical significance of a hand-knitted shawl; and an anthology of stories that provides glimpses into my inquiry. Each of these components contains threads of connection and compassion, and woven together, these unbroken threads represent a holistic body of work entitled *Perceptions of Inseparability: A Heuristic Response to Thomas Berry's call for Connection*. In this paper, I have chosen to refer to the Earth with a capital E, a choice which reflects the respect of a proper noun for the place in which we live.

I come away from my studies with a belief that each of us, in his or her own way, has the responsibility and the capacity to connect with and respond to the needs of other beings, human and other-than-human, who share this Earth with us. I offer this work with the humble hope that some aspect of my exploratory journey will resonate with those who read it, and will encourage them to respond in their own way towards creating a more socially and ecologically just world.

I would like to dedicate this work to my dad, Edward William Mills, known to his many friends simply as Bill. My dad has been an unwavering source of strength, love, faith, intellectual stimulation and encouragement throughout my whole life, and it is largely because of his influence that I have developed such a deep love of learning. As a way of saying thank-you to my dad, I have chosen to submit this dissertation with the name he and my mom gave me many years ago.

Barbara Elizabeth Mills, October 15, 2013

CHAPTER ONE
AN INTRODUCTION TO BERRY'S COSMOLOGY AND EDUCATIONAL MANDATE

"The Earth is not a collection of objects but a community of subjects," was a concept he expected people to understand. He would add with an impish smile, 'If you don't get this, you don' t understand anything'" (Kistofak,www.thomasberry.org).

Overview of the Study

Heuristic, defined as "enabling a person to discover or learn something for [oneself]" (www. Oxforddictionary.com) is a term which aptly describes my journey of learning. In a search for a deeper understanding of what it means to be integrally connected to the Earth, I found a starting point in the words of Thomas Berry: *Humans must undertake a radical shift in consciousness in order to come to the realization that the Earth is a Communion of Subjects and not a Collection of Objects* (www.thomasberry.org). Berry's statement, which represents his call to modern humans to awaken to the ecological crisis taking place on the planet, has provided a foundational basis to undertake a holistic study of theory and lived experience that has touched upon the areas of evolutionary science, quantum theory, depth psychology, Indigenous wisdom, and contemplative practice. This dissertation, entitled *Perceptions of Inseparability: A Heuristic Response to Thomas Berry's Call for Connection*, represents my holistic realization that at this critical time, the human species can no longer isolate itself from the Earth community. We must come to understand that we are inseparably connected not only to our human ancestors, but to the other species, and to the ancient energies and processes of our planet as well.

Introduction to Initial Literature Review

In an attempt to come to a comprehensive understanding of Thomas Berry's imperative that humans must undergo a radical shift in consciousness in order to come to the realization that the Earth is a communion of subjects and not a collection of objects (Berry, n.d.,www.thomasberry.org), I conducted a research investigation into the multi-dimensional meaning of Berry's statement. The following chapter is the result of an initial literature review of Berry's cosmology and educational mandate. It explores the influences that led to Berry's *Communion of Subjects* orientation, the elements involved in Berry's call for a shift of consciousness, the narrative that frames Berry's theme of connection, and the educational avenues of learning that Berry recommends.

Berry's Intellectual Background

Born William Nathan Berry in 1914, the man later known as Thomas Berry was the third of thirteen children, and from the time he was a child of eight, he began retreating into quiet spaces to ponder deep thoughts about the meaning of life. On one such childhood occasion, Berry had a profound mystical experience that became a central determinant for the evolution of his thinking, his educational orientation, and his measure of reality and value. As an eleven-year-old in Greensboro, North Carolina, Berry stood and gazed across a creek, where he was deeply touched by the beauty and mystery of a meadow of lilies against a background of spring woodlands, chirping crickets, and blue sky. In that moment, he glimpsed the interconnected wholeness of reality, and he experienced an intense feeling of "communion" with of all creation. When he retired seventy years later, he

returned to Greensboro, and in the writings of his later years, he reflected that the profound numinous experience of his childhood had consciously and unconsciously impacted the entire range of his lifelong pursuit of knowledge, expenditure of energy, and attitude towards life.

As a result of this mystical experience that shifted his own consciousness at a very young age, Berry seemed to be aware that one's innermost being is united to other living beings and to a greater numinous whole that defies time and space. Even as a child, he was attuned not only to the awe, mystery, and beauty of the Earth, but also to the suffering, alienation and disconnection of the human in the modern world. He was intuitively aware of the negative effects of the fragmentation that results when humans objectify themselves, each other and the natural world.

As a young man, Berry was attracted to a contemplative style of learning, and he searched for a place where he could escape the demands of a consumer-driven society in order to discern the purpose of his life. He joked that in 1934, the only options available to a contemplative were prison and the priesthood, and opting for the latter, he entered a monastery of the Catholic Passionist Order when he was twenty. He took the name Thomas from Thomas Aquinas, the thirteenth-century scholar who wrote *Summa Theologica,* a work that Berry regarded as a masterpiece for its contextualization of Christian thought within Aristotelian cosmology. He was ordained in 1942, but he pursued the life of a scholar. As a cultural historian whose studies moved from human history to cosmological history, he preferred to be called a geologian rather than a theologian (Conlon, 2012; Dalton, 2009). Berry's vast intellectual journey spanned several continents and synthesized historical,

scientific, religious, linguistic, and artistic knowledge from many cultures. His vision for the future of the Earth is grounded in a search for an understanding of the past that contextualizes the present and dreams of a sustainable future.

Central to Berry's pursuit of knowledge was the element of story. As he was pursuing his doctorate in the 1940's, he studied the work of Giambattisa Vico, (1768-1844) an Italian humanist who proposed that the story of human history was divided into periods of time, and as ages moved from one to the next, a period of disintegration called "barbarism of reflection" occurred before a period of imaginative regeneration called "barbarism of refinement" took hold to establish the distinctive culture of a new age (Tucker, 2006, p. 154; Dalton, 2009, p. 20). In his early work, Berry, influenced by Vico, divided the story of the human into three macrophase periods: the *Tribal-Shamanic*, when humans drew on psychic symbols of power and profound spiritual forces; the *Classical-Religious-Traditional* when humans developed historical consciousness and desire for control of the physical universe; and the *Scientific-Technological-Industrial*, when humans privileged rational and mechanistic modes of thinking and acting over other ways of knowing. Later in his intellectual journey, as Berry learned the story of the unfolding Universe, he came to understand the 600 million year story of the Earth in three evolutionary ages: the *Paleozoic* (570-240 million years before present), the *Mesozoic* (240-65 million years before present), and the *Cenozoic* (65 million years before present until now). Throughout a lifetime of study, Berry came to the conviction that at this critical moment in time, both the Earth and the human are "between stories;" the Earth is in a time of transition as it readies itself to enter a

new *Ecozoic* era, and humans are in a stage of "barbarism of reflection," as they are beginning to realize the havoc humans have wreaked on the natural world during the most recent times in history—havoc resulting from a mechanistic worldview that has severed connections between inner human energies and the energies of the planet and has separated humans from each other and from the other species on the Earth. The contemporary "barbarism of refinement," requires a change of consciousness towards that of a cosmic orientation that will not only connect humans to each other as a species, but will also reconnect the human species to the Earth, taking humans into both an *Ecological* age of the human story and a new *Ecozoic* era of the Earth story (Berry, 1988, 1999, 2006; Swimme and Berry, 1992).

It was the energy needed for this "change of consciousness" away from the mechanistic fragmentation of the Scientific-Technological-Industrial stage of the Cenozoic era and towards the ecological connection of the Emerging-Ecozoic era that most fascinated Berry. He pursued mystical, philosophical, religious, psychological, artistic, and scientific perspectives of peoples throughout history who had experienced universal inter-connectedness with the Earth in an attempt to develop an evolutionary paradigmatic narrative that would motivate modern Western humans to access the deep energies needed to love, revere, and respect the planet. The language of his developing narrative often drew on his familiarity with depth psychology: *myth* as a way of creating human meaning, *archetype* as invisible energy that gives humans direction, *collective unconscious* as the psychic archetypal content shared by all humans, and *synchronicity*, as the energy that links internal and external realities in space and time (Jung, 1964; McKnight, 2006). In addition,

Berry became deeply knowledgeable about the cosmic worldview of Indigenous peoples, the non-dualistic contemplative practices of Christianity, the mystical insights of people from Eastern, Western and Indigenous cultures who had experienced the "oneness" of creation, and the "creating, sustaining and fulfilling power" (Berry, 1999, p. 183) of feminist wisdom which had balanced patriarchal control throughout periods of history.

As his epistemological perspectives expanded, Berry sought a Western worldview that acknowledged the psycho-spiritual-material aspects of reality, connected human culture to the energies of the cosmos, and validated the inseparable relationship between space and time. This he found in the organic worldview, which was characterized by the concepts that parts relate to each other and to the whole; and a change in a part will bring about change in the whole. Thus, for organic philosophers, subjective inner vitality was critical to external form. Adherents to this worldview moved away from the dualistic rigidity of scientific rationalism to the freedom of learning about the world through individual creative expression, intuitive and imaginative knowledge, and cultural diversity. In opposition to mechanistic, non-relational Cartesian reductionism, they recognized that "it is within the communion of the whole that the full meaning of the part is achieved" (Dalton, 2009, p. 46). This view was central to the theories of Alfred North Whitehead (1861-1947), a philosopher-scientist who had proposed "a radically new vision of reality" (Mesle, 2007, p. 34) which was grounded in the belief that the human spirit is an integral part of the social and natural web of interrelated, relational, and dynamic processes within the universe. Whitehead asserted that the

creative process, rather than being ruled *from without* by an external creator, is actually an organic ordering in which the numinous, in both *primordial* (abstract, unconscious) and *consequent* (concrete, conscious) forms, becomes a participant with the physical universe *from within* (O'Murchu, 2004).

Berry was especially intrigued with Whitehead's explanations of the interconnected nature of time, in which memories of the past, events of the present, and anticipations of the future were construed. Within this organic pathway, Whitehead suggested that as intrinsic allurement propels one towards possibilities, creativity is actualized through various potentialities, and awakening experiences unfold within the holistic process. Whitehead's ontology proposed that humans are bound up with nature and all of reality in these ongoing relational processes of *becoming,* and that the human experience of nature can only be fully explored through the entire interrelated web of spatial-temporal energy relationships in the universe (Green, 2003, pp. 18-20; Mesle, 2007, 34-41; Whitehead, 1925, pp. 157-167). This process-relational explanation of the connection between time and space validated Berry's sentiments that "the world of experience calls [humans] to a wider ethical responsibility toward all creatures" (Mesle, 2007, p. 40).

But Berry's existential search for meaning, authenticity, and morality went beyond Western philosophy. When he became convinced that the Western system could not adequately explain the full experience of reality (Berry, 1991), he began an in-depth study into how ancient Asian disciplines had enabled people to develop the "spiritual capacity to sustain themselves" in order to deal with "alienation" and the "agonies inherent in the human condition" (Dalton, 2009, p. 35, citing Berry,

1992). He spent a year in China where he worked with Confucian scholar and professor from Columbia University, William Theodore du Bary, but the two men left China in 1949 when Mao's Communist government came into power. With the exception of several years in the early 1950's when he served as a United States Army chaplain in Germany (www.nrconline.org, 2009), Berry spent much of his time in North America studying Sanskrit and Chinese language; Indian, Chinese, and South Asian cultural and spiritual practices; and Indigenous history, languages, and spiritual traditions. He then began teaching at several universities in the United States. His classes were popular because he was able to weave threads of Eastern, Indigenous, and Western thought into contemporary issues of the day.

In the mid-1950's, when Berry encountered the previously banned ideas of priest and paleontologist Pierre Teilhard de Chardin (1881-1955), the developing narrative of his search for meaning began to come full circle. Much of Teilhard's focus was linked to the mysticism of science, especially in the areas of evolutionary transformation and quantum physics. Teilhard explored the entire space-time history of the planet, and he began to see the universe as a single integral energy event. He moved from viewing the universe as an age-old cosmos, where time is experienced in ever-renewing seasonal sequences and death and rebirth cycles, to viewing the universe as a cosmogenesis, where time is experienced as a thirteen-billion-year process of developing, emerging, and becoming (Swimme & Berry, 1992). Teilhard proposed in his theory of *Cosmogenesis* that since the beginning of time all matter has been infused with spirit and that spirit-filled matter has complexified in "evolutionary sequences of irreversible transformations" (Swimme

& Berry, 1992, p. 3). He proposed that in order to develop an evolutionary paradigm to motivate human action, it is first necessary to appreciate how, since the beginning of time, the complexification of matter and spirit have been transforming matter to life, to mind, to present experience, and to future development in thought (Swimme interview, 2001).

Teilhard's cosmogenetic theory implied that the species that now exist on the Earth are derived from earlier life forms; that humans are a more complex form of the same spirit-filled matter as other living beings; and that since the human mind exhibits consciousness, consciousness in a simplified form must have existed since the beginning of the evolutionary process. In addition, Teilhard asserted that the human, as a complex being, was created at a specific time in the evolutionary unfolding of the universe for the role of articulating, recording, and preserving conscious reflections about the processes of the Earth.

Teilhard proposed that since the twentieth century, for the first time in history, the human is discovering a depth of time, a third dimension of phenomena that connects the formation of the Earth's layers, the litho-atmo-hydro-bio-spheres, each of which has a physical as well as a spiritual dimension, to the layer of human thought, the *noosphere*, which is currently being formed. The function of this noospheric layer is what Teilhard called *hominization*, or "the way in which human thought [and energy] transforms previously existing practices and functions of the [E]arth" (Swimme interview, 2001). Hominization happens when the human consciously reflects upon the evolution of nature and imagines a future unfolding of the Earth. Teilhard recognized that the natural processes such as the attraction of

gravity, the nurturance of animals for their young, and human expressions of intimacy are powerful examples of interconnected energies emerging from the Earth. He optimistically asserted on the day humanity accesses the Earth's energies of love, " …for the second time in the history of the world, the human being will have discovered fire" (Teilhard de Chardin 1936, XI, 86-87*).*

In 1962, when Berry encountered Rachel Carson's *Silent Spring*, he experienced a shift in his own consciousness that caused him to question the anthropocentric nature of some of Teilhard's scientific theories and to broaden his studies in different directions. Carson's descriptions of the devastation on the Earth that had sprung from modern Western scientific progress had a transformative effect on him, and during the late 1960's, as his concern for the state of the Earth intensified, he began refocusing his entire intellectual efforts on the ecological crisis. When he met mathematician Brian Swimme in the 1980's, Berry was in the process of writing *The Dream of the Earth* (1988), a cosmological narrative that revealed a comprehensive "New" story of hope for the future of the planet (Tucker, 2009, www.thomasberry.org). He and Swimme forged a lifelong friendship, and in 1992, the two men penned the *The Universe Story,* a collaboration of science and the humanities that builds upon Berry's dream. In 1999, Berry wrote *The Great Work,* which envisions the multi-dimensional collective movement necessary for transitioning into his new, more sustainable story; and in 2006, he wrote *Evening Thoughts,* which reiterates his challenge to Western people to integrate their stories within the narrative that he calls the *New Story* of the Earth.

Berry's *New Story* is the story of a cosmology that integrates evolutionary biology and quantum science with mythic language, creative imagination, introspective wisdom, and the practical and intuitive knowledge of ancient peoples (Dalton, 2009; Haugen, 2011; Swimme, 1996; Tucker, in Berry, 2006). "Essential to this cosmology is a 'continuity of being' and thus a 'communion' between various levels of reality—cosmic, social, and personal" (Tucker, www.thomasberry.org). With connection and compassion at its heart, Berry's *New Story* provides an ethical and intellectual framework for the visionary nature of his multi-layered cosmic dream for ecological sustainability and human justice.

Berry's Cosmic Perspective

Thomas Berry's cosmic perspective is that of a great story that encompasses all other stories. His cosmological narrative begins with the emergence of the universe and traces the evolution of life throughout the history of the Earth. The *homo sapiens* segment of the story begins approximately 200,000 years ago, and is distinguished by the appearance of a species that consciously questions the meaning and purpose of life.

Berry divides the story of the Earth into macrophase periods of historical time, each of which is further divided into smaller stories of time-developmental, self-organizational organic processes that are both physical-materially and psycho-spiritually oriented. The smaller stories move from one stage to the next in periods of physical and psychic transformation that are marked by chaos and turmoil. In the case of human stories, the human consciousness, in its search for meaning and purpose, becomes involved. Human stories are driven by the energy of myths,

which provide structure to archetypal symbols that connect unconscious and conscious human awareness (Berry, 1988, 1999; Jung, 1964; Plotkin, 2003; Sabini, 2002). In historical times of confusion and chaos, when mythic structures have lost meaning and purpose, humans have searched for new myths that energize them to undergo cultural and spiritual transformations. Berry believes that at this time, all humanity, and particularly Western humanity is in critical need of a new myth; in fact, he asserts that the future survival of the human species is dependent upon it.

Berry situates his critique of the modern day segment of Western humanity within a vast study of the historical, cultural, religious and scientific developments throughout space and time and within a comprehensive examination of the evolving values and reality of humans at each stage of the story. From the vantage point of a cultural historian, Berry believes that the modern Western myths of an "industrial, scientific and technological paradise" (1999, p. 201) that measure "progress" by anthropocentric, mechanistic endeavors, have alienated human consciousness from the integral organic-based processes of the Earth. Modern Western humans have become fascinated with controlling the physical-material world and have neglected the numinous mystery and power of the psychic-spiritual world. The mystique of corporate enterprise has absorbed the most sacred and archetypal mystique of the Earth (Berry, 1999), and has disconnected generations of people from the creative forces inherent in the natural world. The mechanistic norms of reality and value have resulted in short term benefits for humans in some parts of the Earth, but they have been disastrous for other humans and for other species on the planet. The myths driving the modern Western industrialized story are no longer working, and

in fact, have created an addiction to an accumulative way of life, a "supreme pathology" (1988, p. 206) that is causing so much mass destruction in the natural world that it is changing its composition. Inhabitants of the Earth are now living a dysfunctional existence. Nature is in a deficit; the world economy is in a deficit; the human is in a deficit (Berry, 1988).

Berry asserts that this chaos is indicative of a time of transition, and that a new myth is needed to drive human energy. He believes that in this time of chaos and turmoil, the Earth is mandating a fourth age, a bio-centric era, which Berry calls the *Ecozoic*. He proposes that humans, at this exact time in history, are being compelled to take on a responsibility for the Earth never assigned to any humans in the previous three ages (Berry, 1988). To prepare for the transformations necessary, Western humans must detach from the dysfunctional aspects of their mechanistic world; access the suppressed, cosmic knowledge of primal peoples, (Dalton, 2009) and reintegrate the human venture within the functional organic world. Humans are being called to tap into their inherent creative consciousness and to connect to the "psychic energies deep in the very structure of reality itself" (Berry, 1988, p. 48). They are being asked to summon the energy necessary to imagine a new cosmic myth, one that will sustain the passion needed to undergo the historical mission of our times, "…to reinvent the human at the species level, with critical reflection, within the community of life systems, in a time developmental context, by means of story and shared dream experience" (Berry, 1999, p. 159). The agenda for the Ecozoic era establishes the urgent need for a cosmology that functions to provide "the mystique needed for the realization of integral earth-

human presence" (Berry, 1988, p. 66). This aspect of Berry's story will only be available when humans understand that "every articulated entity of the phenomenal world" (1999, p. 57) has both a material-physical and psychic-spiritual reality.

Berry's "functional cosmology," (1988, p. 66), his *Dream for the Earth* (1988), his *Story of the Universe* (1992, with Brian Swimme), his *Great Work* (1999), center around the realignment of cosmogenetic principles that determine the values and the direction of the universe at all levels of reality (explanation below). When these principles are in balance, the story of the universe moves forward as it should. When these principles are "no longer in sync" (Macy, 2011, p. 116), chaos ensues, and transformation becomes necessary. Berry believes that the intense cultural pathos of our time is a strong indication that the cosmogenetic principles are being violated in "their most primordial expression" (1999, p. 163), and that the Earth is directing and energizing the realignment of these principles by moving into a new segment of the story. With the assertion that "the journey of the universe is the journey of each individual being in the universe" (1999, p. 164), he calls for humans at the microcosmic level to embrace his *New Story*, and to take the action necessary to undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a *Communion of Subjects* and not a *Collection of Objects.*

A Radical Shift in Consciousness: **A Reinvention of Cultural Coding**

Our human cultural coding establishes the perimeters of our values and our patterns of action (Berry, 1988). The cultural coding of our mechanistic culture has weakened our biosphere, eliminated profound psychic experience, restricted human imaginative power, and destroyed "unique modes of divine presence" (Berry, 1988,

p. 115). Berry suggests that in order to come to the realization that the Earth is a *Communion of Subjects,* one must go back "to the governing principles of the universe" (1988, p.44), and allow them to shape one's ontology and epistemology. Referred to as differentiation, subjectivity, and communion, these three aspects of reality and value constitute Berry's guiding cosmogenetic principles (Berry, 2006).

Differentiation orders cosmogenesis. We live in a differentiated universe with physical, mental and spiritual realities, and within these realities, each being is "glistening with freshness ontologically unique, never to be repeated" (Swimme, 2001, p. 61). Berry's principle of differentiation is based on the concept that each being has something unique to offer, and therefore is essential to the whole. Differentiation is the opposite of assimilation and standardization. It celebrates difference and uniqueness. It calls humans to acknowledge all living beings as subjects within an interconnected communion of life; to respect diversity at all levels of being; to experience many ways of knowing; to expend outward energy in a multitude of actions; and to honor people from all races, cultures and religions.

The second principle, *subjectivity*, structures cosmogenesis. The universe is filled with structures who have the ability to self-organize and to "participate directly in the cosmic-creating endeavor' (Swimme & Berry, 1992, p. 75). Subjectivity is the inner dimension of each being, not visible to the eye, but discernible to the intellect; not physically evident to the outer world, but integral to the functioning of the whole. Subjectivity gives each being an interior identity, an inner spontaneity, and an inner ability to self-organize and adapt to its surroundings. "Subjects" such as atoms, elements, plants, animals, and humans are

all centres of *spontaneity*, the interior ability to self-regulate; *sentience*, the innermost ability to experience; (O'Sullivan, 1999) and *direct perception*, the ability to reciprocate awareness (Abram, 1996; Fox & Sheldrake, 1998). Subjectivity requires an appreciation of the "…reality and value of the interior subjective numinous aspect of the entire cosmic order…as the basic condition in which the [new] story makes any sense at all" (Berry, 1988, p. 135).

The third principle, *communion*, organizes cosmogenesis. Berry's understanding of communion mirrors the scientific understanding of a quantum holographic universe that views the Earth as a "single, if multi-form energy event" (Berry, 1988, pp. 45-46). It recognizes that each being, although unique, is interrelated within the Earth community as a whole, and that the well-being of one is directly connected to the well-being of the whole. Each life form is an integral component of a deep, relational totality; in other words, there is no sense of the individual as alienated from community. Beginning with the laws of cosmic allurement and gravitational attraction, each reality is in communion with every other reality. As unique persons, we have a need for being present to one another at our deepest levels of subjectivity; this need extends to the wider context of both our natural world and the entire universe. "To be is to be related, for relationship is the essence of existence" (Swimme & Berry, 1992, p. 77). Berry (1999) states:

> Our own future is inseparable from the future of the larger community that …sustains us in every expression of our human quality of life, in our aesthetic and emotional sensitivities, our intellectual perceptions, our sense of the divine, as well as in our physical nourishment and our bodily healing (p. 162).

To exist as a *Communion of Subjects,* Berry (1988) calls humans to develop compassionate physical, spiritual and instinctual connections to the ensouled and animate natural phenomena of the Earth**.** This connective knowing he calls "participatory consciousness, " and he describes it as the kind of deep knowing experienced by our ancestors, knowing that arises from integral participation with the animate world, and knowing that provides the foundations for human fulfillment in the form of aesthetic and philosophical expression, moral perception, and theological insight: "Fulfillment for humans continues to be delight in the celebration of existence in intimate presence to the comprehensive community of the universe" (Berry, 2006, p. 118).

A second component of the reinvention of cultural coding involves the recognition and reorientation away from the *Collection of Objects* mentality that now prevails in the Western world. At this critical moment in Earth's evolutionary history when humans are for the first time able to look back 13.7 billion years ago to the beginning of time, and trace the emergence of the galaxies, the solar system, the planet, earthly life, photosynthesis, reproductive creativity, flora and fauna, self-reflexive human consciousness, and the scientific discoveries of the past millennium, Berry believes that modern Western humans must use our evolutionary knowledge to come to recognize our rightful place in the Earth community. We need to realize that Western humans, in a very short time in Earth history, have wreaked geographical, biological, and psychological devastation to an unprecedented extent than ever before experienced on the Earth. Berry describes the driving force behind

the assault on the natural world as the result of an anthropocentric mentality that has come to view nature as a *Collection of Objects* that exist for human exploitation:

> In our times, human cunning has mastered the deep mysteries of the earth…We can break the mountains apart; we can drain the rivers and flood the valleys. We can turn the most luxuriant forests into throwaway paper products. We can tear apart the great grass cover of the western plains and pour toxic chemicals into the soil and pesticides onto the fields until the soil is dead and blows away in the wind. We can pollute the air with acids, the rivers with sewage, the seas with oil…We can invent computers capable of processing ten million calculations per second. And why? To increase the volume and the speed with which we move natural resources through the consumer economy to the junk pile or the waste heap (Berry, 1988, p. 7).

But Berry believes that the *Collection of Objects* mentality has taken the greatest toll on the human. In disregarding the subjectivity of plants, birds, fish and animals and other life forms in the natural world, humans have lost a much deeper reality, that of connection to mystery, awe, wonder, and numinous presence at the heart of all creation. In destroying other life forms on this planet, humans have lost refinement of compassion and sensitivity, powers of imagination, and words for telling stories to their children about inner experiences and the intimacies of life. It is Berry's hope, in the midst of such crisis, that Western humans will awaken to a sense of what is happening (Berry, 1988). Because transformation itself is an evolutionary process, Berry believes that at this very moment, we are being invited to begin living justly as one species in a vast *Communion of Subjects* on the Earth.

Berry's Educational Mandate

Berry asserts that Western education, which plays a large part in cultural coding, has overly stressed the development of the rational, mechanistic, accumulative, individualized, and standardized product-oriented mind and has not fully developed the interior, contemplative, artistic, intuitive, compassionate, relational, and organic process-oriented side of human nature. Berry's challenge to Western educators is to imagine processes that align with the universal principles of differentiation, subjectivity, and communion. This involves a commitment to develop rather than suppress the unique, natural, creative tendencies that all humans inherit at birth and to imagine pedagogy that arises from Earth-centered education that challenges humans individually and collectively to take their rightful place within the interconnected Earth community.

At this turbulent time in the history of the Earth, Berry (1988, 1999, 2006) believes that connection and compassion for the Earth and all of her inhabitants must be at the heart of every educational endeavor. He is critical of twentieth-century mechanistic Western educational theory and practice that separates humans from all other life forms, and reinforces the anthropocentric perception of the natural world as a collection of objects that exists for human use and consumption. He stresses that at this point in history, when humans are causing mass destruction in the natural world, the Earth's well-being must become the primary referent of all educational programs, curriculums, and courses of study (Berry, 1988). He asserts that education must play a crucial role in reorienting humans away from anthropocentrism in order that the human species might

reconnect to the vast multitude of living beings on the Earth. He maintains that education at all levels must reinforce the means by which people, individually and collectively, might come to realize the Earth as a *Communion of Subjects* and not a *Collection of Objects*. Berry calls educators to engage in multiple ways of knowing and experiencing reality in order that they might envision pedagogy that fosters education for transition into a both a new Ecological age and a new Ecozoic era of human history.

Berry predicts education of the future will, of necessity, "be defined as knowing the story of the universe, of the planet Earth, of life, of consciousness, all as a single story" (2006, p. 31). He believes that the universities of the 21st century must take a leadership role in initiating reconnection by taking education out of "the land of 'academic barbarism' [contemporary alienation from nature] to a land of educational responsibility where the power of knowledge is subsumed to the greater common good" (Fox 2011, citing Berry, in Lazslo & Combs, p. 23). Berry emphasizes that Western universities, as powerful institutions of learning, must "have the insight and the freedom to provide the guidance needed…to reorient the human community toward a greater awareness" (Berry, 1999, pp. 79-80). They must take the responsibility to foster ways of knowing that prepare humans for the role of becoming an empowering "intimate presence to the natural world" (p. 73), and to recognize the Earth as the primary educator. He defines education as much more than a rational endeavor:

> Only if the human imagination is activated by the flight of the great soaring birds in the heavens, by the blossoming flowers of the Earth, by the sight of

> the sea, by the lightning and thunder of the great storms that break through the heat of the summer, only then will the deep inner experiences be evoked …The natural world demands a response beyond that of rational calculation, beyond philosophical reasoning, beyond scientific insight. The natural world demands a response that rises from the wild unconscious depths of the human soul (Berry, 1999, p. 55).

Layers of Knowing and Understanding

Berry (1988) declares that to be educated, one must know the story of the Universe and to understand one's role in its fulfillment, and he challenges each individual to develop a critical comprehension of one's own story within the context of the larger story. But this is no small task! Such comprehension requires a good deal of rational calculation, philosophical reasoning, and scientific insight, as well as an integration of many layers of other ways of knowing and understanding.

Rational avenues of knowledge in Berry's educational framework.

Critical reflection. From a cultural-historical standpoint, Berry suggests a first step in undertaking a shift in consciousness is to "enter into a deep cultural and personal reflection" (O'Sullivan, 1999, p. 8) about the larger cultural paradigms operating under the surface of modern day Western consciousness. This involves acknowledging the "autism" (Berry, 1999, p. 79) of a culture that has become disconnected from the awe of the natural world and preparing to break the "all-pervasive addiction" (Swimme and Berry, 1992, p. 254) to an individualistic, consumptive way of life. It also involves recognizing the cultural and historical foundations of a system of education that has contributed to fragmentation.

***Intellectual appreciation of the multi-faceted story*.** A second step is to come to an intellectual appreciation of the many facets of Berry's *Communion of Subjects* story. Berry's writing, almost always in essay form, appears on the page as a holistic amalgamation of deeply layered avenues of thought that are not easily separated. For Berry, "communion" always means the whole, and the whole is never fragmented into parts. But for the Cartesian-trained mind to come to a thorough intellectual understanding of what Berry means by the statement that *Humans must undergo a radical shift in consciousness in order to come to the realization that the Earth is a communion of subjects and not a collection of objects*, one must understand each strand that is integrated into the comprehensive tapestry of the whole.

Other ways of knowing advocated in Berry's educational framework.

Coming to know the other-than-human world. Berry advocates educational practice that nurtures a sense of belonging within the natural world, ideally in the place in which one lives, or alternatively in a place of close proximity in which one might connect with members of the other-than-human world. He suggests that as one becomes aware of, gets to know, and establishes integral, intimate, and compassionate relationships with members of the other-than-human world in one specific bioregion over an extended period of time, a shift in orientation will naturally begin to occur. He believes the shift will become deepened if one becomes increasingly sensitive to the "profound communications made … by the sun and moon and stars, the clouds and rain, the contours of the Earth and all its living forms" (Berry, 1999, p. 64). And he ascertains that it will become more intensified if one becomes receptive to the mysterious shaping of each

life form, to the unseen life energy given and received by each being, and to the unspoken reciprocal communications between other species and the human species.

Berry believes that making connections to the other-than-human members of a specific geographical region sets the foundation for "mutually-enhancing human-earth relationship[s]" (Berry, 1988, p. 30). Further, when humans "awaken" to other life forms, their inherent interior capacities of imagination, intuition and compassion spontaneously develop, and they begin to realize that these dimensions of human knowledge arise from an inner coherence that draws from the energies of the Earth. This reorientation prepares the way for a "conversion experience deep in [one's] psychic structure" (Berry, 1999, p. 60).

The knowledge of participatory consciousness. Berry describes "genetic coding" as the basic psychic and physical structure and function of being, (1988, p. 194). Genetic coding is the evolutionary instinctual, creative, adaptive, and embodied knowledge that is passed down to each living being through its ancestors. It is the mysterious source that shapes the sounds of the frogs, the colors of the fish, and the smells of the flowers, and it contains the interior organization, the innate abilities, and the survival instincts that each of these beings possesses. As examples, geese are genetically coded to learn how to swim and fly, mate for life, and take turns leading the way on a migration route each fall and spring. Deciduous trees are genetically coded to blossom in the spring, change colors in the late summer, shed their leaves in the fall, and preserve their energy during the winter.

Humans, too, possess genetic coding that contains instinctual, intuitive and embodied patterns for learning, knowing, creating, adapting, and surviving that are

connected to the rhythms and processes of the Earth. But within their genetic coding, humans have an inherent desire towards cultural coding, as well. For example, humans are genetically predisposed to talk, but the language they use arises from the culture in which they live; humans are predisposed to express rhythm, but the style of music and dance they enjoy arises from their cultural influences. Berry asserts that the cultural coding of modern Western humans has worked against their genetic coding, especially in the last several decades, when advances in media communication have provided the means for increasingly bombarding individuals with skewed cultural messages about what is required to satisfy human physical, spiritual, intellectual and emotional needs. Too much emphasis has been placed on externals that can be measured, seen, and compared, and not enough emphasis has been placed on developing interior compassionate, intuitive, and aesthetic sensibilities. In a world that has become increasingly industrialized, Western humans are becoming disconnected from the sense of awe and mystery and wonder in the natural world, and they are losing their instinctual connection to "all those deeper physical and spiritual spontaneities that are consciously activated into cultural patterns by the genius of human intellect, imagination and emotion" (1999, p. 106). Berry suggests that for the first time since the tribal-shamanic age, humans must reach back into "the primary tendencies of nature itself" (1988, p. 209) in order to reconnect to their primordial genetic coding.

He calls this reconnection cultural therapy, and he believes that if people become open to connecting to the mysteries of the other-than-human world, a "healing and a restructuring at the most basic level" (p. 210) will take place:

> What I am proposing here is that the prior [religious-cultural-educational] archetypal forms that guided the course of human affairs are no longer sufficient. Our genetic coding… is providing us with a new archetypal world. The universe is revealing itself to us in a special manner just now. Also the planet Earth and the life communities of the earth are speaking to us through the deepest elements of our nature…(Berry, 1988, p. 215).

Berry articulates that because "the [E]arth functions at a depth beyond our capacity for active thought," we must develop our "sensitivities to what is being revealed to us" (1999, p. 165). He asserts that we must learn to tap into the spontaneities within us, … "our pre-rational, our instinctive resources… " (1988, pp. 207-208)…the "intuitive, non-rational process[s] that occur when we are open to the numinous powers ever present in the phenomenal world about us" (Berry, 1999, p. 211). We must become attuned to the "visionary experiences that come to us in some trans-rational process from the inner shaping tendencies that we carry within us, often in revelatory dream experience" (Plotkin, 2011, citing Berry in Laszlo & Combs, p. 45); and "[we] need to know how to participate creatively in the wildness of the world about us" (Berry, 2006, p. 51). Berry calls this knowledge "the evocation of participatory consciousness," described by Haugen (2011, in Laszlo & Combs, pp. 33-34) below:

> …a new mode of consciousness…a heightened, world-reshaping awareness of participation with the visible and invisible; embodied and numinous; past, present, and future beings, relationships, and energies among whom we dwell. This mode contrasts with the Cartesian bifurcation—or mind/matter

> and subject/object separation—into which most Western people are indoctrinated. It is a more porous consciousness, a felt-sense of interpenetration and reciprocity; a psychic and somatic openness to the [o]thers and to the mysterious terrain of imagination and dreams…

Berry challenges Western educators to investigate ontologies and epistemologies that acknowledge the whole of reality—mind, body and spirit; that recognize primordial connections and reciprocal exchanges of energies between the human and other-than-human species; and that explore participatory learning experiences that nurture natural intuitive, imaginative, and creative tendencies.

Conclusion of Chapter One

The preceding chapter represents the understandings gleaned from an initial literature review. During the two-year process of conducting this review and engaging in participatory methods of learning suggested by Berry, it became evident that a deeper comprehension of Berry's Com*munion of Subjects* orientation required the integration of additional lived experience and further scholarly study. As a result, it became necessary to find a methodology that could adequately frame the participatory aspects of Berry's cosmological orientation and educational mandate, and at the same time, allow for more in-depth investigations into the layers of meaning underlying Berry's worldview. An explanation of the methodology follows in Chapter Two: The Heuristic Research Process.

CHAPTER TWO

THE HEURISTIC RESEARCH PROCESS

Focus of Research: A Shift in Consciousness

In keeping with the themes of connection and compassion that emerged in the last chapter, Thomas Berry (1988, 1999, 2006) suggests that when one undertakes a critical understanding of the story of evolution and situates one's place within the emerging universe; when one orients oneself towards the potentialities of a multi-dimensional reality; when one develops a participatory awareness of the other-than-human world; when one begins recognizing one's primordial connection to the Earth; and when one experiences even a fleeting moment of compassionate connection of "communion" with all of creation, one will eventually come to an understanding of one's own story within the context of what he calls the *New Story*. At that point, one will also experience the stirrings of a shift of consciousness towards the realization that the Earth exists as a *Communion of Subjects* and not a *Collection of Objects.*

Having identified the above components associated with a shift in consciousness towards a comprehensive understanding of Berry's statement, *Humans must come to the realization that the Earth is a Communion of Subjects and not a Collection of Objects*, I began the search for a qualitative research process that would facilitate authentic opportunities for the development of what Berry considers a *Participatory Consciousness*. In addition, I sought a holistic methodology that honors Berry's cosmological perspective; namely, a unified ontology which recognizes both psychic-spiritual and material-physical realities; a multi-

dimensional epistemology which encompasses both rational thought and artistic, contemplative, sensory, compassionate, embodied, intuitive ways of knowing; an organic paradigm which allows for both intellectual comprehensions and creative processes to unfold naturally throughout the stages of the research; and perhaps most importantly, an element of story, which provides the means by which both the story of the research inquiry and the context of the larger stories of the unfolding Universe and the evolving Earth might be understood.

Discerning A Methodology

In the first two years of the research process, I regularly engaged in a number of contemplative, participatory, intuitive, embodied, and artistic methods advocated by Berry (1988, 1999, 2006), and at the same time, I conducted a lengthy search for a methodology that could adequately frame all facets of my research. I investigated the qualitative methodologies of Autoethnography (Chang, 2008; Denzin, 2006; Ellis, 2004; Ellis & Bochner, 2000; Scott-Hoy & Ellis, 2008; Starr, 2010), Intuitive Inquiry (Anderson, 2004, 2006), and Narrative Inquiry (Barone, 2007; Dunlop, 1999; Hiles, 2008); but unfortunately, each of these methodologies required interpretation and analysis in order to move the research forward. It was essential for me to find a methodology that would allow me to simply honor—to "sit with," to "marinate," in the lived experiences of the inquiry without any form of control. And although I did not use any of them as a framework for my inquiry, I did benefit from an in-depth comprehension of the other methodologies. From the investigation of Autoethnography, I gleaned an understanding about the design, contextual positioning of *self*, representation, and legitimation of autobiographical research

(Chang, 2008; Davis & Ellis, 2008). From the exploration of Intuitive Inquiry, I recognized the importance of determining one's own internal frame of reference, or "style" (Anderson, 2004); of coming to terms with one's assumptions in terms of the research questions; of being open to confusing and contradictory data that potentially leads the research in new directions; and of establishing authenticity and validity in hermeneutical research that crosses conventional academic boundaries (Anderson, 2004, 2006; Hiles, 2001). From an investigation into Narrative Inquiry, I became familiar with the importance of blending the aesthetic with the political, the practical and the possible by means of "story;" and of consciously constructing one's narrative in a way that makes it accessible to an audience beyond those who are versed in educational theory and jargon (Barone, 2007).

When I began the study and practice of Contemplative Inquiry, developed by physicist Arthur Zajonc (Zajonc, 2009; Palmer & Zajonc, 2010), I discovered that it was a more suitable methodology for purposes of my research. Unlike the other methodologies, it required the researcher to "stay with the experience" and set aside intuitions, interpretations, and habitual thinking in order that a shift in consciousness could evolve. In addition, its organic, process-relational orientation aligned with that of Berry and those who had influenced him such as Whitehead, Teilhard de Chardin, and Swimme. It also integrated components of multi-dimensional reality, connection to nature, ancient wisdom, and transformation of consciousness. As a solo meditative exploration that follows a sequence of practices, Contemplative Inquiry is designed to cultivate a change in consciousness by progressing through stages of wonder, reverence, participation, and self-

surrender, and if the process is successful, it eventually leads to a way of perceiving in which "subject-object consciousness disappears, a non-dual form of awareness takes its place and [one experiences] know[ing] from within" (Zajonc, 2009, pp. 56-57). But, after struggling with the stages of Zajonc's inquiry for over a year, I discovered that although his methods of establishing Inner Hygiene (see Appendix A: Methods) were beneficial to my inquiry, I did not move forward in the overall methodology in ways that provided meaningful experiences for honing a deeper sensitivity and connection to the other-than-human world. As a result, I began searching for another methodology to supplement the contemplative research process, and eventually I discovered Bill Plotkin's (2003) *Soulcraft* , a methodology which Berry himself highly endorsed (foreword, in Plotkin, 2003).

When I read that Plotkin, an eco-psychologist, once asked Thomas Berry what he meant by inciting a shift in consciousness, and the older man replied, " I mean the work that you do, Bill" (Plotkin, 2011, in Laszlo & Combs, p. 44), I thought that I had found the perfect methodology. Plotkin describes his work as a trail guide for "the conscious discovery and cultivation" of each human's "unique and mystical relationship to the wild world," the journey that initiates one into true participat[ory consciousness]" (Plotkin, 2008, p. 3). Plotkin's *Soulcraft* (2003) methodology is founded on eight basic "truths" which lead to the realization that in the Western culture, where many humans have become disconnected from the spiritual and soulful aspects of our human nature, we must create deeply significant initiatory customs and rites that connect human meaning and existence to the inner processes of the Earth—rather than trying to adopt those of other cultures who

have their own established traditions. As in Contemplative Inquiry, Plotkin's methods became important to my research, and I was able to successfully integrate them with contemplative methods in a way that enhanced both experiences; but they did not give me the comprehensive framework by which to fully develop the evolutionary and scientific perspectives present in Berry's orientation.

In the spring of 2012, almost in desperation to find a suitable methodology, I went back to an in-depth re-reading of Berry's books in an attempt to extrapolate a methodology from his writings. It was then that I discovered what was missing. As a result of having practiced the methods Berry and others had advocated for almost three years, I began to uncover nuances in Berry's writing that were not evident to me when I conducted my initial literature review. I discovered that Berry's phrase *Communion of Subjects* had several strains of underlying meanings, and dependent upon the context, could be interpreted in a number of different ways.

It was then that I realized that conducting a literature review and combining it with the practice of a qualitative methodology was not enough to complete my research inquiry. If I were to *come to the realization that the Earth is a communion of subjects and not a collection of objects*, my inquiry would require the integration of an ongoing academic investigation into the writings of other scholars whose works might provide supplementary understandings to the considerable facets of Berry's *Communion of Subjects* orientation. At that point, I began an intensive study of the Berry's *New Story* from the perspective of four lenses of academic exploration, each of which became a whole unto itself and an essential part of the greater whole. I started with an investigation of evolutionary science, explored the realm of quantum

reality, progressed into the Earth-human interconnectedness of primal peoples, and concluded with the study of various non-dualistic ways of knowing. When I integrated the exploration of these textual components with complementary qualitative methods, the non-linear reciprocal process served to unearth layers of meaning theoretically and experientially, and the inquiry began to make sense. And fortunately, not long after that, I discovered Heuristic Inquiry (Moustakas, 1990), and more specifically, Heuristic Self-Search Inquiry (HSSI) (Sela-Smith, 2002).

Over the course the last two years, I have found in Heuristic Inquiry a comprehensive methodology that has framed my research questions, integrated my ongoing academic study, encompassed the variety of methods I have employed, incorporated learning and teaching experiences which have enhanced my work, and provided a holistic foundation for the evolution of all facets of my research inquiry.

An Explanation of Heuristic Research

Heuristic research is research that encourages one to discover meaning for oneself. It allows for the integration of rigorous academic inquiry with qualitative aspects of human experience that are concerned with meanings, qualities, and experiences that cannot be measured, quantified, or reduced (Hiles, 2001). I found in Sandy Sela-Smith's (2002b) Heuristic Self-Search Inquiry a methodology that provides the researcher, as the sole participant in the inquiry, with both the structure and the freedom to explore and integrate the theoretical and qualitative elements necessary in the type of educational processes Berry advocates.

In Heuristic research, "[v]irtually anything connected with the question[s] becomes raw material for immersion, for staying with, and for maintaining a

sustained focus and concentration" (Moustakas, 1990, p. 28). The Heuristic process provided me with the framework to integrate participatory methods directly related to the process with a number of indirectly related learning experiences.

The Research Questions

My response to Berry's challenge to undertake a shift of consciousness towards a *Communion of Subjects* understanding of my story within the context of his *New Story* was grounded on the following interrelated questions:

1) What are the theoretical underpinnings of the statement, *Humans must undergo a radical shift of consciousness in order to come to the realization that the Earth is a communion of subjects and not a collection of objects* as perceived through the lenses of evolutionary science, quantum reality, human participatory consciousness, and non-dualistic perspectives?

2) How might a heuristic research process holistically integrate a theoretical and critical exploration of scientific, philosophical, and cultural sources of knowledge with reflective and participatory methods of knowing and understanding? What personal shift(s) in consciousness might occur as a result of this holistic integration?

3) How might one integrate the "story" of the learning experienced in a Heuristic Self-Search Inquiry into one's personal worldview, and into the story of the unfolding Universe and the evolving Earth? What representation(s) of the heuristic process might ensue?

Heuristic Comparative Self-Search Inquiry (HSSI)

Although Sandy Sela-Smith's (2002b) HSSI was primarily designed for qualitative study, Heuristic research has, as an adaptive component, the option to employ a layering process called Heuristic Comparison to integrate other-than-qualitative aspects of one's study into each stage of the research process (Hiles, 2001). Since full comprehension of Berry's worldview can only be realized through a continuous reciprocal exchange of theoretical knowledge and participatory experience, it has been necessary for me to incorporate this comparative element into my inquiry.

The Theoretical Aspects of the Research Process

I have sought to identify and develop an in-depth comprehension of the key theoretical perspectives, which throughout Berry's lifetime of study, gave focus and layered meanings to his description of the Earth as a *Communion of Subjects*. The foundational academic understanding of the perspectives by which Berry understood the world gave substance to the ongoing participatory aspects of the research process. I could not have fully experienced the qualitative inquiry without a layered comprehension of Berry's ontological, axiological and epistemological foundations. At the same time, I could not have fully appreciated Berry's body of academic scholarship without the corresponding participatory components of the research.

The in-depth study of what I call Berry's *Cosmogenetic, Holographic*, *Inscendent*, and *Non-dualistic Lenses* is found in Chapters Three to Seven of this work.

Understanding the Qualitative Processes and Phases of Sela-Smith's Design

Heuristics can be used in any investigation "where the inquiry is on the cutting edge of new territory being explored" (Sela-Smith, 2002b, p. 58). Heuristic research significantly departs from mainstream research in that 'it explicitly acknowledges the involvement of the researcher … [and it] entails writing a story that captures the qualities, meaning and essence"(Hiles, 2008, pp. 389-90) of the researcher's lived experience**.** Heuristic Inquiry, which enables the learner to discover meaning for him or herself, is designed to encourage the researcher into entering into a non-linear process of developing knowledge and awareness, exploring sensory perceptions and feelings, and allowing unconscious and conscious processes to intermingle and create new meanings and perspectives.

Sela-Smith, (2002b) who refined HSSI from Clark Moustakas' (1990) Heuristic Inquiry, describes the qualitative aspects of her methodology as follows:

> HSSI is a process wherein the researcher surrenders to the feeling in an experience and does not know what will be learned at the time the inquiry is begun. There are no hypotheses or expectations regarding outcomes, no hope to confirm or refute a proposition. There is no attempt to isolate variables or observe the effects one set of variables has on other variables… The purpose is to allow the formation of new awareness and connections or to see the self or the world from a different perspective and, thus, reinterpret meanings or significance. There is no controlling the process; in fact, the opposite must take place. It is in this surrender... that long-hidden tacit knowledge…may finally emerge …and human beings can begin to consciously and collectively create

new experience from new worldviews (p. 84).

The seven processes of heuristic research (see below) assist the researcher to move through the six phases of the inquiry (see 2nd outline below):

The Seven Processes of Heuristic Self-Search Research

(Adapted from Hiles (2001); Sela-Smith (2002))

Identification with the Focus of the Inquiry. Through exploratory open-ended inquiry, self-directed search, and immersion in active experience, one is able to get inside the questions, become one with them, live them, and thus achieve an understanding of them (Moustakas, 1990, p. 15).

Self-dialogue. Knowledge grows out of direct experience, and discovery involves being open to and dialoguing with oneself about one's own experience. Self-discovery, awareness, and understanding are the initial steps of self-dialogue process (Moustakas, 1990).

Tacit Knowing. The key idea in this concept is that "we can know more than we can tell" (Sela-Smith, 2002, citing Polanyi, 1966, p. 4). Tacit knowledge is deeply embedded, and it grows each time one unconsciously compares and unifies new experience with what one knows internally (Moustakas, 1990).

Intuition. Intuition moves one to deeper and richer layers of meaning. It accesses the energies of one's accumulated wisdom of knowledge, experience, and observation to make interior connections and to discern interrelatedness between internal and external events (Sela-Smith, 2002; Moustakas, 1981b).

Seven Processes Continued

Indwelling. Indwelling is an internal process of thinking and feeling into deeper levels and meanings of experience (Sela-Smith, 2002, referencing Moustakas, 1981). It is an informal layering process that requires one to dialogue with and sift through one's internal knowledge, thoughts, dreams, opinions, and/or experiences throughout one's exploration (Sela-Smith, 2002, citing Sheelef, 1994).

Focusing. "Focusing is an inner attention, a staying with, a sustained process of systematically contacting the more central meanings of an experience" (Moustakas, 1990, p. 25). Similar to the technique developed by Gendlin (1990), it involves a sustained period of concentration in which one purposely brings one's inner attention to the core meanings of an experience or the "felt sense" (Gendlin, 1990) of what is inside, so that one can see qualities that one was not conscious of previously (Sela-Smith, 2002, referencing Douglass & Moustakas, 1985). It involves multiple ways of perceiving, sensing and accessing inner feelings and knowledge.

Internal frame of reference. One's understanding of the unique way one sees the world is a reflection of one's individual frame of reference. It is potentially shaped by a multitude of factors: one's knowledge, experiences, feelings, beliefs, personality, age, race, and social standing, to name a few. It is also shaped by the ways one accesses energy, perceives the outside world, processes information, and organizes knowledge and experience. Recognizing and acknowledging these factors are necessary steps in the situating oneself within the heuristic process.

Figure 1: The Seven Processes of Heuristic Inquiry

The Six Phases of Sela-Smith's (2002) Heuristic Self-Search Inquiry (HSSI)

Phase One: Initial engagement arising from a passionate concern. The researcher relates intimately and autobiographically with the question to discover and clarify crucial dimensions of his or her knowledge and experience (Moustakas, 1990). This phase ends when a clear question emerges.

Phase Two: Immersion. Immersion involves living into the questions from all angles. "Virtually anything connected with the question becomes raw material for immersion, for staying with, and for maintaining a sustained focus and concentration" (Moustakas, 1990, p. 28). Data is derived from academic study, interactions with people, places, nature; readings, journal-writing, poems, artwork, stories, autobiographical logs, dreams, intuition, tacit knowing, synchronous and exceptional experiences, and ideas from the marginal space between sleeping and waking (Sela Smith, 2002, referencing Barrineau & Bozarth, 1989; Braud and Anderson, 1998; Etherington, 2004).

Phase Three: Incubation. Incubation is a process of silent nourishment that "produces a creative awareness of some dimension" (Moustakas, 1990, p. 29). It involves creating an internal space to enable the unconscious self to sort and contemplate new understandings in its own time. Nothing goes on consciously, but a profound understanding is growing (Sela Smith, 2002a, referencing Moustakas, 1981). Sometimes incubation involves a period of waiting, and illuminations arise spontaneously at such times or retroactively, after the incubation period is over.

Six Phases Continued

Phase Four: Illumination. Illumination is the experience of spontaneous integration and insight, which creates new meanings and realigns distorted perceptions; it is the breakthrough into conscious awareness the interconnectedness of the inner and outer functions. Potentially, illumination opens the door to new awareness, a modification of an old understanding, a synthesis of fragmented knowledge, or a new discovery (Hiles, 2001).

Phase Five: Explication. Explication is about finding a way to describe one's experience. The researcher creates an inner space where he or she brings into conscious awareness the various layers of meaning —recognizing that these understandings are dependent on his or her internal frame of reference (Moustakas, 1990; Sela-Smith, 2002a).

Phase Six: Creative Synthesis. This phase tells the "story," revealing the new interconnected meaning unifying the processes and phases of the research. Following a preparatory phase of solitude (Hiles, 2001), the researcher comprehensively expresses the essence of the inquiry into an integrated whole---usually in the form of a narrative…or some other creative form (Sela-Smith, 2002, referencing Moustakas, 1990). "It is time of synchronicity, harmony, connection and integration" (Sela-Smith, 2002, p. 69).

**Note: The researcher passes through phases 2, 3, and 4 numerous times before reaching phase 6.*

Figure 2: Six Phases of Heuristic Research

Positioning Myself in the Research Process

The message that all external change must begin from within is repeated in many different ways in Thomas Berry's writing (1988, 1992, 1999, 2006). It is a message that is supported by the suggestion that one begin by critically reflecting upon one's historical and cultural background in order to come to a full appreciation of the internal and external influences that have shaped one's epistemology, axiology and ontology. I began my research by using a critical autoethnographic reflection to position myself within the context of my inquiry. A brief summary of this critical reflection follows.

A Brief Critical Reflection—From the Beginning

I was raised by parents who had experienced extreme poverty, alienation and dysfunction in their own upbringings, and as a result, were ruled by a set of discourses that separated knowledge and experience into high and low status categories (Bowers, 1997). They stressed the value of Christian beliefs, charity, frugality, hard work, academic excellence, education, a high-paying career, an urban lifestyle, and an accumulation of savings; and they discouraged me from staying in the farming and railroading community in which I was raised. The "place" of my childhood was a small Saskatchewan city that had a history and a "particular way of life" (Giles & Middleton, 2008) all of its own, and for an only child (until I was 10) who was not of the dominant culture and had no relatives nearby, it was a lonely place. My childhood was not one devoid of nature, but neither my parents nor my friends were the "outdoorsy" types, and I was not inclined to venture out into natural spaces on my own. In fact, for most of my life, I was quite fearful of nature,

and I was quite disconnected from the processes of the natural world, despite the fact that I married a man who has a deep connection to the Earth.

I am thankful that from the time our children were born, my husband introduced them to the Sun, the planets, the Earth and a myriad of plants and animals. For my part, I encouraged them to explore their creativity, follow their passions and value their relationships. As a mother, I tried to model social justice and ecological responsibility, but I struggled with questions such as the following: Is it possible to have children and live simply in the First World? Is it "okay" to give children opportunities in music, sports, education, and travel, when so many children in the world have nothing? If I don't give my children the "right" kind of clothes and technology, will I add to the already existing external pressures that they have to "fit in"? I am now a grandmother, and I still struggle with these questions. I have never agreed with the materialistic orientation of our Western culture, but at the same time, I have never acted upon the desire to make the permanent lifestyle changes that would diminish the physical comforts and intellectual benefits it has provided for me.

Career-wise, I followed my own dreams rather than my parents' dreams, and became a high school teacher. In many ways, working in a Catholic school identified me as an adult person, in terms of values, friendships, social relationships, and a sense of belonging to a community. In the twenty plus years that I taught creative drama, I began noticing a link that as students had increased access to technology, they became less connected to their own imaginations. When I began delving into social justice issues, however, my students' technological savvy became an

advantage, and their ability to research global information provided me with an education about the companies that were producing the commodities I was being encouraged to buy, what Sandlin and McLaren (2009) would call an informal pedagogy of consumption. This transferred into my personal life, and as a result, I became proactive in "reading the text of [my] own life," (Greunewald (Greenwood), 2003, p. 10) in terms of making changes in my habits as a consumer, and becoming involved in social and environmental activism. Several times, I was told that I had too many issues by some of my acquaintances, and once, I was confronted and accused of being "anti-capitalistic" by a mother of one of my students.

My teaching career came to a rather abrupt halt when, early in the millennium, my doctor insisted that I take a medical leave because I had developed a serious chemical sensitivity to the environment of a new school. I have come to realize that the seeds of what I now call a Heuristic Self-Search Inquiry were planted back then. One day when I was frustrated about being on my own with little to occupy my mind, I picked up a book by spiritual teacher Henri Nouwen, and I read his words about the difference between "doing" and "being". I realized that for my entire life, I had been a "doer, " and I had never learned how to just "be". Nouwen advised that in order to learn how to "be," one begin by embracing silence, entering into the moment, and absorbing the beauties of the natural world. Therein began my love affair with the Earth and all of its glories! For the first time in my life, I began to experience things that previously I had been too busy to notice. During long walks in the park behind my house, I began to pay attention to amazing groupings of color; I started to recognize familiar trees, and I became attuned to the sounds of different

birds. I became sensitive to the smell of the air, and I came to appreciate the freshness of the daily changing Saskatchewan climate. In the evening, I studied the night sky. Sometimes I stood in one place for an hour, and looked in utter amazement at the wonders of the stars and the moon. Before long, extended periods of silence in nature became an essential part of my day. I learned practices of contemplation and meditation, and I often spent time walking along the banks of the South Saskatchewan River, spending hours just watching the geese on the water. Inwardly and outwardly, I felt a peace, an affinity for nature, and a quality of life that I had never taken the time to develop in my earlier years. The seeds of "being" had germinated into a promise to myself that I would never again allow busyness to disconnect me from the natural world.

As my health improved, however, my life became more hectic. I began volunteering for the Friendship Inn and the Open Door Society, and I got serious about completing my Master's degree. I also trained as a Spiritual Director—which introduced me to depth psychology, the power of dreams, Aboriginal ways of knowing, deep listening, and a contemplative lifestyle. When I was healthy enough to go back to teaching, I designed and researched a three-credit class that integrated many of the aspects of this new learning into my teaching—in terms of connection to nature, contemplation, meditation, service, arts-based pedagogy and multi-dimensional ways of knowing. The success of the class convinced me that our present system of education is not working for students who are not motivated by competitive, standardized, accumulative styles of education. A passionate longing to

advocate for education that integrates one's inner creative resources with an interconnected relationship to nature was stirring inside of me.

At the same time, the silent seeds that had germinated and had been gaining strength throughout my adult years were sprouting into what Bill Plotkin (2003) describes as a "nature-based," (p. 15) "call to adventure," (p. 17) a "deep longing within [and] an equally great terror [finding something that would] shake up [my] lif[e], [and my] sense of security" (p. 10). This pull felt somewhat "like an earthquake in the midst of [my personal] life" (p. 17).

As it turned out, I listened to both inner calls, and a series of synchronous events led me into taking an early retirement, finding a little place in the forest that has become the space of my deepest learning, and delving into the wisdom and the challenges of Thomas Berry. Throughout this Heuristic Self-Search (Nature-based) Inquiry process, I have experienced and continue to experience a shift of consciousness that has been generated by "an intimate relationship to land and place" (Plotkin, 2003, p. 15).

The Places and Spaces of the Research Process

In accordance to Berry's suggestion that one develop participatory awareness and intimacy with a particular bioregion, I chose as the primary place of my research a piece of property set on the shores of Christopher Lake, Saskatchewan which adjoins with 97 hectares of protected Boreal forest. The area is home to black bears, deer, foxes, coyotes, squirrels, woodpeckers, bush grouse, owls, blue jays, chickadees, magpies, crows, ravens, robins, hummingbirds, frogs, toads, dragonflies, wasps, mosquitoes, flies, butterflies; spruce, poplar, birch, willow, cranberry,

Saskatoon berry, hazelnut, raspberry trees, and dozens of other animals, birds, insects and plants. Although I have been able to find out little about the history of the place, I do know that it is on Treaty Six land, and that trappers used to set up makeshift campsites along the shores of the lake. I also know that early in the twentieth century, the property on the lakefront was sold to cottage dwellers, and the undeveloped back property was partially used as a gravel quarry and a garbage dump. From what I understand, when the quarry closed down, a local man named Lionel Roy negotiated with the government to preserve the backland from further development, and it was declared a protected nature area in 2000. In the backland area, there are three trails, which originated as makeshift roads and wildlife paths. At this time, the abundant wildlife in the forest still walks on the trails, as do a handful of local people. In an area of cleared forest at the head of one of the trails is a place called *The Circle of Life*, where flagpoles carrying Métis, Saskatchewan, and Canadian flags are located.

My husband and I fell in love with Christopher Lake when we first visited it almost forty years ago, and through an incredible series of unlikely coincidences, a tiny cabin on the shores of the lake fell into our laps at almost the same time that I was about to begin my research. My studies have taken me to other places, but always, new knowledge gained in other locales has served to deepen and enhance the relationships that I have formed within the forest setting of Christopher Lake.

The Data of the Inquiry

The most exciting thing about Heuristic Research is that because personal experience is integral to the inquiry, everything one becomes involved with during

the research process potentially becomes a source of data (Sela-Smith, 2002a, referencing West, 1998). Since "[h]euristics requires setting aside controlled, objective observation in favor of subjective experience" (Sela-Smith, 2002a, p. 54), it potentially leads one to understand and appreciate layers of meaning (Sela-Smith, 2002a, referencing Braud & Anderson, 1998) in a variety of experiences during the research process. Data can be derived from academic study, interactions with people, places, things, nature, readings; dreams, intuition, tacit knowing, images, synchronous and exceptional experiences, and ideas from the marginal space between sleeping and waking; and it can take the form of journal-writing, poems, artwork, stories, and autobiographical logs (Sela Smith, 2002, referencing Barrineau & Bozarth, 1989; Braud and Anderson, 1998; Etherington, 2004). The data in my inquiry arose non-linearly from all of the above experiences, and it took the form of all of the above representations.

The Methodological Story of the Research

The six phases of the Heuristic Self-Search Inquiry framed the non-linear research process. A description of each of the phases follows.

Phase One: Initial Engagement

In *Phase One: Initial Engagement*, I identified the focus of my research (the first process of the inquiry) as the desire to understand the underlying meaning of Thomas Berry's phrase *Communion of Subjects*, and to develop a deep interrelated connection with human and other-than- human beings in one specific bioregion—to the extent that the experience would radically shift my way of perceiving and being in the world. At the time, I was searching for a methodology that had an

autobiographical aspect, could accommodate the ontological assumptions of Berry's worldview, and was able to stretch the epistemological boundaries of conventional research. It was through the investigation of Rosemary Anderson's (2006) Intuitive Inquiry, which Hiles (2001) describes as a variant of Heuristic Inquiry, that I was able to discern my research questions, and to determine that a contemplative component was a necessary part of the qualitative research. This intuitive exploratory process of self-dialogue and self-understanding (second process of the inquiry) also helped me to identify my own assumptions in relation to Berry's work. It was imperative to the integrity of my inquiry that I identified and accepted the following eight foundations of Berry's cosmology:

- An assumption that Berry's ontology is valid, and an acceptance of Berry's interpretation of reality as a holistic integration of the physical, mental, and spiritual dimensions.
- An assumption that Berry's organic process-relational philosophy is meaningful, and an acceptance of Berry's understanding of a time-developmental universe in which the knowledge of the past is connected within the context of the present and the on-going emergence of the future.
- An acceptance of Berry's conviction that many Western institutions have promoted a worldview that objectifies and disconnects people from members of the human and the other-than-human species.
- An acceptance of Berry's belief that awareness of and participation in the natural world potentially will forge a connection between the mysterious processes and rhythms of the Earth and the interior intuitive, archetypal,

mythic, imaginative, visionary, conscious and unconscious workings of the human mind.

- An assumption of Berry's conviction that intuitive, artistic, contemplative, compassionate and imaginative ways of knowing are authentic avenues of comprehension that enhance the pursuit of rational knowledge.
- An assumption of Berry's belief that we live in an evolutionary universe that is full of potentiality, possibility, and unpredictability—and his belief that chaos often incites transformation—is valid.
- An assumption that Berry's cosmogenetic principles of differentiation, subjectivity, and communion are true measures of universal value in our emerging multi-dimensional reality.
- An assumption that Berry's trust in Nature mysticism is valid.

Phase Two: Immersion

In *Phase Two: Immersion*, I lived into the questions from all angles. For the most part, my immersion experiences took place within the forest setting of Christopher Lake, where I regularly engaged in methods designed to hone participatory awareness and a contemplative, non-dualistic appreciation of connectedness in the natural world. Initially, I discerned and chose methods derived from the literature that I was reading, but eventually, I engaged in the regular practice of methods that "fit" offered by Berry, Swimme, Zajonc, Plotkin, Anderson, Rowe, and others (See Appendix A: Methods, for a complete listing).

The holistic immersion experience itself was a matter of living in attunement as one member of a community of beings over an extended period of time, and

conducting myself in such a way as to respect the fact that the other living creatures in the area had as much right to be there as I did. For four-plus years, I spent several weeks of each season immersed in the natural setting, and without realizing how it happened, I developed a compassionate relationship and a deep familiarity with the other-than-human beings in the wild. In the first years, I spent the majority of my time sitting on the shores of the water, kayaking to various locations around the lake, or walking on the back roads that surrounded the area because I was wary about going into the forest on my own. I avoided the forest trails altogether for about a year because a family of black bears was roaming about. It was not until the last eighteen months of my study that I was able to overcome a fear of venturing alone into the forest, and from that time on, although I still frequented the area on and around the lake, I more often headed into the woods, where I experienced a growing knowledge of the other-than-human inhabitants of the forested area. As I became more familiar with the terrain, I began to notice specific seasonal changes in individual trees and fields of flowers, and I began to recognize certain birds and butterflies and squirrels that frequented the same places as I did. They kept their distance, and I kept mine, but each of us knew that the other was present, and we lived in harmony together.

On several occasions, especially in the last eighteen months of my research, I spent weeks at a time at Christopher Lake when there were no other humans around, and for days, I would not talk to anyone human in the vicinity. In the summer, there were always people nearby, and I especially enjoyed conversations with an elderly neighbor and a bird-watching couple, all of whom are as

knowledgeable about science and natural processes as anyone I have met. And then there were other occasions when my granddaughters came to visit, and my time in the woods took on whole new dimensions. Especially in the first years of my research, when the oldest granddaughter was very young, she and I would spend long periods immersed in watching the wonders of the world around us. We watched birds build their nests and feed their babies; we searched for hours on end in hopes of seeing the queen in an ant colony, and we cried when we witnessed the falling of a favorite tree that had died. When we went for walks through the forest together, my granddaughter saw and appreciated beauty that I missed. I will never forget the time she flung back her head, threw out her arms, and danced like a fairy in a field of wildflowers—I picture that image every time I walk through that field. Now that there are two granddaughters, we never miss the opportunity to venture out into the forest, and I cannot believe the different perspectives they bring to the experience.

If there were a negative side to the immersion, it would be that I often felt there was an imbalance in the time I spent outside and the time I spent in front of a computer. The latter was the greater because of the sheer immensity of academic research I had to do in order to delve into the layers of Berry's cosmology. But when I did take breaks and wander into the woods, I experienced inseparable connections to what I was reading. As I was studying the story of the unfolding of the evolutionary universe and the ever-changing emergence of life systems, I was at the same time noticing the swarms of insects that appeared and then disappeared almost weekly throughout the spring and the summer—the almost invisible no-see-

ums, the industrious ants, the gentle brown and turquoise dragonflies, the magnificent multi-colored butterflies, the creative spiders, the huge hard-shelled beetles, the bold black flies, and the ever persistent mosquitoes—and I became attuned to the differences in insect populations each year. I began to develop some compassion for the pesky wasps that had been driven from their natural habitats because of pesticides, and I tried to imagine the adaptations that they had undergone to survive. When I read Rachel Carson's *Silent Spring* (1962), it strengthened my tendencies to avoid using any type of chemical, and I contrived various apparatuses to deter various bugs from invading my territory; but when they proved ineffective, I reminded myself that I was only one member of a *Communion of Subjects* sharing the same space.

As I was investigating the textual component of the research, other experiences were enhancing my studies, as well. I often got up at dawn to make the most of the daylight, and each time I watched the sun rise, it not only amazed me, its ever-transforming colors reminded me that the Earth, the seasons, the days, and the moments—which are regulated by age-old rhythms and patterns—are constantly changing and evolving. On those early mornings, I often saw a few little deer grazing right outside my window, and I watched them in silence until they noticed me and darted away. When I went down to the water to begin my morning contemplative ritual, I felt extreme gratitude for the privilege of witnessing the immense beauty of the lake, and the sky, and the surrounding forest; but I also felt saddened by the decreasing number of ducks that made their home on the lake from year to year. As I was reading about the five major extinctions on the Earth and the even greater

extinction going on right now, I worried that my grandchildren's children would never experience the magical wonder of Christopher Lake.

I began to think differently about time as I reflected about the millions of years that had passed on the Earth before humans were even born; I imagined what the land and water at Christopher Lake might have looked like before the first cottage owners arrived; and I grieved for the damage that humans have done all over the Earth in such a short period of time. I began to think differently about space, as well. I often lay on the ground late at night feeling the Earth beneath me and looking up at the magnificence of the sky, feeling absolutely amazed that the elements of my body had come from the mysterious implosion of stars, and that the same forces drawing me to the ground were holding the stars in the sky.

As I was studying about the paradoxes and the synchronicities of quantum reality, I was at the same time experiencing the fascinating possibilities of empty spaces and unseen energies in the atmosphere around me, and a contemplative walk in the forest almost always seemed to clear my head and renew my vigor. When I watched the waves on the water, I compared them to the mysteries of life itself, thinking about how each of us rises up, takes shape, expends his or her energy and then returns back to the source of all life itself. In the forest, I thought a lot about chaos whenever I looked at the hundreds of enormous trees that had been wiped out by a powerful plough wind in a matter of a few minutes, and I thought about possibility as the new little spruce trees began to pop up in their place. When I looked up at the moon, I thought about the non-local connections described by

quantum science, and I reflected that loved ones on the other side of the Earth could look at the same moon, and it made me feel more connected to them.

As I was investigating the domain of primordial and instinctual human tendencies, I was at the same time, drawing from the energies and processes of the Earth as I began to intuit and reflect upon my dreams and imaginary visions, and to regard them as trustworthy sources of knowing (third and fourth process of the inquiry). Early on in the research process, I envisioned a mandala symbol, and it came back to me several times during the four-plus years, so much so, that I began drawing mandalas during reflection times, and in the last year of my research, I felt intuitively that I wanted to create a mandala as a symbol of my research journey. Also early on in the research process, I had a number of dreams that dealt with animals of the wild and the befriending of my considerable fears of them, and as I unpacked these dreams, I recognized their significance in my journey. Almost three years into the research, I had a very powerful dream that motivated me to become more adventurous in the wilds, and it led to a life-changing encounter that involved a deep, reciprocal feeling of "communion" with the natural world. This illuminating experience transferred over to another dream which was very disturbing, and which gave me a powerful insight into the suffering of the Earth. These two dreams marked an inner change that family and friends who knew me well began to notice. These experiences also marked an unexpected turning point in my research, a shift in consciousness that I could not have predicted when I began the process.

As I moved forward and backward (fifth process of the inquiry) through the layers of the heuristic process, I began to experience deeper and deeper meanings

as the thoughts arising from my newly acquired knowledge intermingled with my "internal thoughts, dreams…and experiences" (Sela-Smith, 2002, citing Sheelef, 1994). When I stayed with this integration of thoughts and feelings for an extended period of time (sixth process of the inquiry), it brought my inner attention to a deeper level of consciousness, and I began to become aware of a reciprocal exchange of energy between inner and outer influences that I had not been conscious of previously (Sela-Smith, 2002, referencing Douglass & Moustaka, 1985). I found that I began experiencing a more connected and compassionate way of perceiving the world as I began feeling a strong sense of interconnected belonging to Nature.

The integration of mind, body, and spirit in the complementary processes of academic study and lived experience seemed to work in a synchronicity of readiness—it seemed as if I needed the knowledge to appreciate the experience; and then the experience readied me for the next round of knowledge; and then the acquisition of new understandings enhanced and deepened the next layer of experience, and so on. For example, when I began my study of Aboriginal ways of knowing, I had a background in spiritual direction, and I had some experience with Aboriginal spirituality and the importance of dreams. I had also participated in smudging, and discussion circles, and I had been invited to a sweat lodge, where a Cree Elder had explained to me the significance of the four directions, and the animal and spirit guides. I entered each of these experiences with an open heart and a desire to learn, and I found them to be very enriching, but until I began experiencing a deep spiritual connection to Nature on my own, I did not really understand the significance of many of the sacred traditions. However, once I began

making connections to the natural world in my own experience, layers of understanding began to develop. When I re-read the books written by Gregory Cajete (1994, 2000) and Marie Battiste (2000), and then subsequently had the opportunity to listen to the Elder, Danny Musqua talk about his spirit guides and about his dreams and visions, the underlying meaning of the explanations of these individuals sunk in a little deeper. The next time I was invited to a sweat lodge, I understood a little more, and later, when I listened to talks and read writings of Leroy Little Bear (2000, in Battiste; www. SEEDing Change: Bohmian Dialogues) the meaning behind some of the traditions became even clearer. The layering process continued to deepen as my own experiences brought meaning to what I was reading, and my reading brought new meaning to my experiences. Not longer after I read two books narrated by the Lakota Sioux holy man, Black Elk, I had the opportunity to participate in a sweat lodge lead by a Lakota Elder, and to listen to him speak about his passion for the sacred Earth for several hours. After that experience, on the occasion when I re-encountered the words of Thomas Berry, who described Aboriginal spirituality as "one of the most integral traditions of human intimacy with the [mystique] of the earth" (1988, p. 4), I understood his words at a more profound level, and not long later, when I encountered the following passage from Joseph Campbell, even more connections came together for me. Campbell's words echoed for me the feeling of intimacy with a sacred natural place that was growing in my own heart, an intimacy which echoed the sentiments of the Elders that I had been privileged to meet:

> It's a different kind of world…when you're out in the forest with the little chipmunks and the great owls. All these things are around you as presences, representing forces and powers and magical possibilities of life that are not yours and yet are all part of life, and that opens it out to you. Then you find it echoing in yourself because you are nature. When a Sioux Indian would take the calumet, the pipe, he would hold it up stem to the sky so that the sun could take the first puff. And then he'd address the four directions always. In that frame of mind, when you're addressing yourself to the horizon, to the world that you're in, then you're in your place in the world. It's a different way to live…You must have a place where you can simply experience and bring forth what you are and what you might be. This is a place of creative incubation. At first you may find that nothing happens there. But if you have a sacred place, and use it, something eventually will happen…This sacred place does for you what the plains did for the hunter—for them the whole world was a sacred place (1991, p. 114).

Especially in the last year of my study, as my sense of connection to the place of my learning became more intense, my encounters with Berry's writings, along with such writings as those of eco-psychologist Bill Plotkin and animist, David Abram, both of whose understanding of reciprocity between the *other-than-human* and the *human* align with that of Thomas Berry, was enhanced. I began to spend hours at a time in the forest, and I was energized in ways that are difficult to explain in words. Many times, I would get so caught up in the spiritual feeling of the place that I would lose my sense of direction, but not once did I experience a fear of being

alone. Sometimes, I spent time just sitting and listening—to the sounds of the male frogs whose blaring spring calls became magically silenced every time I came near, to the argumentative and frantic farewell honking of the geese as they made preparations for flight, and to the far off cry of the loon whose echoing lament triggered reminders of those who are suffering in this world. Sometimes, I spent time just watching—in places where trees had been uprooted and fallen, giving rise to ponderings about the mysterious intersection of death and new life; in places where the sun shone energetically through the branches, creating remarkable prisms of life-giving light and eerie spaces of mysterious darkness; and in places where the trees formed arches over shadowed pathways, leading me into multitudes of childlike journeys of wonder in my own imagination. And always—I spent time just breathing—taking in the revitalizing fragrance of the spruce-laden forest, the pungent smells of autumn cranberries, and the vital freshness of Northern soil. Each time I entered the forest, it became more difficult to leave, and no matter what the season, I felt as if I were entering a sacred space whenever I crossed over the threshold into the ever-changing terrain. As my feeling of intimacy with the forest increased, I developed opening and closing rituals of reverence and, respect that framed the time I spent on the trails; and these rituals have become an essential part of my relationships with the other-than-human beings that live in this sacred place.

Scholastically, I immersed myself in the study of Berry's cosmology from the perspective of four lenses, which I eventually identified as having shaped his philosophical and scientific understanding of his *Communion of Subjects* orientation.

This immersion began in the first half of the research process, and intensified in the second half, involving an ongoing, non-linear in-depth textual study of Berry's writings and the writings of numerous scholars who were in some way connected to his work.

Scholarly immersion also involved participation in two annual university conferences dedicated to the continuation of Berry's cosmological vision. These summer institutes, which took place at the Sophia Centre of Holy Names University in Oakland, California, featured presentations by scholars, scientists, artists, poets and educators from all over the world, who individually and collectively, are continuing Berry's Great Work. Presenters and activists such as Brian Swimme, Mary Evelyn Tucker, John Grim, Jim Conlon, Miriam Therese Winter, Diarmund O'Murchu, David Abram, Ivone Gebara, Joanna Macy, and Alexandra Kovats, along with poets, artists and musicians such as Jennifer Berezen, Joyce Rupp, John Fox, Elizabeth Murray and Peter Mayer provided knowledge and insights about how they are responding to Berry's call to imagine and create a more ecologically and socially just world, and I had an opportunity to talk with most of them about questions with which I was grappling. This immersion experience of the gathering of "like minds" over an extended period of time has provided and will continue to provide a source of sustained energy, and it facilitated a profound depth of meaning and experience to my academic study and beyond.

Other immersion opportunities took the form of extended weekend and week-long retreats, each of which contributed to a deeper comprehension of some aspect of Berry's work and to the Heuristic process as a whole. In 2010, I attended a

Focusing retreat offered by Dr. Esther Steinberg, who explored the intuitive and embodied ways of learning in Dr. Eugene Gendlin's (1990) phenomenological process of connecting inwardly with one's conscious and unconscious feelings, a process that complements the Focusing concept of Heuristic Inquiry. In 2011, I attended a retreat called the *Tao of Liberation* offered by Mark Hathaway (2009), who along with Leonardo Boff wrote a book by the same name that explores a critical multi-dimensional understanding of the underpinnings of social and ecological injustices. Hathaway, a fellow doctoral-candidate, provided an academic and experiential understanding of many of Berry's cosmological foundations from a different perspective than my own. Also, in 2011, I took part in a *Contemplative Retreat for Educators* sponsored by the Association for the Contemplative Mind in Higher Education with presenters Arthur Zajonc and Mirabai Bush, in which I had the opportunity to actively participate in contemplative practices related to higher education and to talk with Zajonc (2009) about his methodology.

In 2012, I participated in a week-long retreat for women entitled *Women Mystics*, with Edwina Gateley, who facilitated an imaginative journey throughout history to meet with women who had acted against patriarchy from a sense of inner authority. It was a powerful experience of collective feminine wisdom that helped me to understand how imaginative connections that transcend time and space link us to the motivations and actions of those who have lived before us. The retreat also involved the experiential component of dance; to the rhythm of a drumbeat, Gateley invited us collectively to send healing energies to the Earth through the physical movement of our bodies. It was an experience that had a deep impact on me, and I

felt the intensity of inter-connection not only in the room, but beyond its borders. On the heels of Gateley's retreat, I participated in a five-day retreat with Diarmund O'Murchu, an Irish Catholic priest who, as a social activist and a follower of Berry's cosmology, is currently challenging many of the "man-made" theological doctrines of the Roman Catholic church, and who, like Berry, has reinterpreted theological precepts according to the creative aspects of divine revelation.

In 2012, I also took part in an intensive immersion experience called *Wildness and Shadowed Wonder: Crossing into the Mysteries of the More-Than-Human World* with depth eco-psychologist, Bill Plotkin, and animist philosopher and magician, David Abram, two individuals who operate out of a deep holistic knowledge and practice that aligns with the participatory vision of Thomas Berry. This intensive retreat, which was set in the Grand Teton Mountains of Wyoming, provided an incomparable experiential opportunity to integrate the physical, spiritual, and intellectual aspects of Berry's *Communion of Subjects* orientation. It marked a turning point in my research as the Indwelling and Focusing aspects of the Heuristic process came together in ways that drew my attention to recognizing and facing my lifelong internal fears of the wild and to begin consciously connecting to the other-than-human members of the Earth community from a different point of view. (The story of the experience is found in Chapter Nine of this dissertation).

Finally, in 2013, I participated in Step Two training in Jungian-based Myers-Briggs facilitation, a learning experience designed to provide deeper insights into one's own frame of reference (seventh process of the inquiry) and into the unique perspectives and learning preferences of individuals who operate out of differing

frames of reference from one's own. It served as a practical guide in the final stages of the inquiry, as I considered not only the implications of my learning on my own life's orientation, but as I reflected upon how I might best communicate the experiences of my inquiry to the variety of people that potentially will encounter the written and symbolic representations of my research.

A third source of scholarly immersion presented itself in the area of teaching. During the course of my research project, I was given several opportunities to instruct undergraduate classes in educational philosophy, value-based learning, and place-based pedagogy in the College of Education at the University of Saskatchewan, and to share with teacher candidates some of the readings and authentic experiences that had enhanced my own pedagogical process. Throughout the course of the four-plus years, I found myself integrating meaningful ideas and practices suggested by the following educators into my teaching:

From Parker Palmer, (1998, 2010) I gleaned an understanding of the importance of identifying with one's unique passions, and tapping into the energies of one's inner spirit, integrity and authority. I also appreciated his insights into the development of relationships and community within educational processes, and he inspired me to encourage my students to find and be true to their own styles of learning and teaching. From Heesoon Bai (2006, 2009, 2009, in McKenzie et al; 2010), I gained critical knowledge about the origins of discursive thinking, and about non-dualistic, dialogic, animistic and contemplative processes that have the potential to broaden the perspectives of Cartesian-trained minds. I also appreciated

her insights into many avenues of learning that paralleled my own interests—such as mindful walking on the Earth, connecting the love of nature to the love of stories; learning compassionate ways of understanding; becoming involved in moral, social and ecological activism; and engaging in arts-based, embodied, and nature-based pedagogy. She inspired me to provide my students with opportunities for experimenting with all of the above ways of knowing, learning, and assessing one's work. From Manu Meyer, (2003, 2013) I acquired a broad overview of the integration of the principles of quantum science, Indigenous knowledge, and multi-dimensional reality. I also appreciated her insights into the inseparability of body, mind and spirit, and the possibilities for authentic holistic education that such integration implies. She inspired me to incorporate the spirit into every aspect of the pedagogical process. From Arthur Zajonc, (2009) I received reassurance that there is a place in higher education for contemplative pedagogy, for connection to nature, the arts, and poetry; and for acknowledgement of the individual and collective spirit of learning and compassionate action. I also appreciated his wisdom and his experience in the integration of silence, stillness and meditation in educational processes. He inspired me to take risks, and to incorporate these practices in the classes that I taught. From Lisa Lipsett (2001; www.creativenature connection.com), I gained an understanding into the type of mind that is capable of drawing on interior energies and at the same time, is able to see the outside natural world as a whole of interconnected realities--in a way that inspires the vision of artists and poets—the people whom Berry (1988) calls the shamans of our time. I appreciated her profound artistic insights into much of the same material that I was

studying because she not only provided another perspective for what I was learning, but she indirectly opened doors for my students by inspiring me to give them the freedom to explore their artistic, poetic and dramatic natures. Several students in my classes who were able to relate Lipsett's way of seeing the world had never before been offered the opportunity to engage in class assignments from the perspective of the poet or the artist, and the creative work that they produced was inspiring to both the other students and myself. From educator and social neuroscience therapist, Louis Conzolino (2013), I learned about the connections between the hardwiring, neurochemistry and instinctual functions of the evolutionary human brain and the social conditions which facilitate optimum learning, especially for students from dysfunctional families and for those who learn in unconventional ways. Conzolino's research, which targets young people to whom present day schools are failing, advocates educational processes that foster community building, creativity, and individual and group empowerment. His work, which honors Berry's principles of differentiation, subjectivity, and communion, inspired me to delve into the study of the structure and function of the brain, especially as it pertains to developing pedagogy which facilitates opportunities for students to forge compassionate connections with their inner selves, other people and members of the other-than-human world.

Integral to the contributions of the above educators were the opportunities provided by my own department of Educational Foundations and the College of Education at the University of Saskatchewan, where, alongside the students I was teaching, I was able to engage in top-quality, regular professional development

opportunities in the following areas: Place-Based Learning and Pedagogies of Place, Anti-Oppressive and Anti-Racist Education, Integrated Social and Ecological Justice, Outdoor and Experiential Education, and the Sharing of Stories, to name a few. I was very grateful for the exceptional opportunities offered by my home university.

And I was appreciative of my students. They provided for me invaluable insights. As I presented them with relatively "new" learning experiences that allowed them the freedom to challenge their own creativity, to make inner connections to the natural world, and to focus on process rather than product, they presented me with reflections and representations of learning that continuously surprised, exhilarated, and energized me. They validated for me that art-based, nature-based, and contemplative pedagogy is worthwhile, and their enthusiasm for this type of learning and teaching gave me hope for the future possibilities of engaging collective creative energies towards the realization of authentic education for social and ecological justice, education founded on compassion and connection.

Phase Three: Incubation

There were stretches in the research process when "nothing was go[ing] on consciously, but a profound understanding [was] growing" (Sela-Smith, 2002a, referencing Moustakas, 1981). These were times when for various reasons, I put my active engagement with the study on hold, and allowed the seeds of new meanings to incubate. Looking back, it was during these periods that empty or confusing aspects of the inquiry were being filled. Two significant "expansions" of consciousness happened during these incubation times.

The first was in the fall of 2011, when I was asked to teach a graduate course in the History of Religious Education, which essentially is a course in the history of Eurocentric education beginning in approximately 1 B.C.E. Teaching this course was demanding, and it involved a great deal of study on my part. But it was challenging from another perspective, as well. Fresh in my mind at the time were Thomas Berry's criticisms about the impact of the following historical Western religious foundations: 1) the negative effects of patriarchal control; 2) a division between heaven and Earth, with an emphasis that matters of the Earth are temporary and relatively inconsequential; 3) a separation between humans and all other creation; and 4) an over-emphasis on salvation, and specifically human salvation, rather than an emphasis on the revelatory power of creation.

When I integrated a close historical study of Western male religious authorities with Berry's critical reflections, it triggered a time of deep personal confusion that shook the very foundations of my identity as a Catholic woman. It was a struggle that continued when I attended the Feminine Mystics retreat, when I became involved with an ecological spirituality group, and when I attended certain sessions at the summer institutes in Oakland. It intensified when I studied the works of Diarmund O'Murchu, Matthew Fox, and Richard Rohr, contemporary theologians who like Berry, have included ecumenical, Nature-based perspectives of Buddhism, Taoism, Confucianism, and Native American spirituality into their writings. I am still attempting to sort it all out. Suffice it to say that these experiences both expanded and shifted my consciousness in disturbing and

exhilarating ways, and I will continue to discern their underlying meanings long after this dissertation is finished.

The second expansion of consciousness happened in the fall of 2012, and it too was very personal. During the time when I had newly discovered that what was missing in my inquiry was an intense study of the underlying theoretical lenses in Berry's cosmic perspective, my elderly father was suddenly informed that he had the opportunity to move into an assisted living apartment. Anxious to delve into a new aspect of research, I at first felt inconvenienced by the timing of my dad's move, but I made the decision that I would make my dad my priority for as long as it took for him to settle into his new place, and I stuck to my decision. I put my work to the side, and I poured my whole heart into sorting through and packing up a lifetime of treasures that my dad had accumulated. It did not take long to know that I had made the right choice. That period and the months afterward became a time of unbelievable blessings! I spent many hours each day with my dad, and the two of us laughed, and talked and cried as we shared memories of my mom (who passed away suddenly in 1999), and stories of our small family. I learned more about my dad in those months than I had known for my entire life. And interestingly, the time spent reminiscing and listening to his stories added a depth of meaning to my research that was irreplaceable. I came to understand more clearly the strength, determination, convictions, and faith of the man who had given me life, and our time together helped to explain for me the roots of many of the discourses that had shaped each of our lives. My dad, who did not know his own father, was abandoned by his mother, grew up in an orphanage, and began supporting himself at fourteen

years of age, is a man who defeated the odds against alienation and powerlessness, and is now a source of incredible wisdom and empowerment to his children, his grandchildren and his many friends and acquaintances. I am grateful to have chosen a research inquiry that allows me to acknowledge the spirit of this elder who has taught me so much.

Phase Four: Illumination

There were many memorable *aha* moments of "spontaneous integration and insight" during the four-plus-years in all seven processes of the research. Almost from the beginning, the inquiry seemed to reflect the ancient proverb that *when the student is ready, the teacher appears* (source unknown). I kept a journal in which I recorded illuminating experiences and little insights that struck me, and sometimes—especially when I was walking in the forest—they would come together in the form of a story, which I would later record.

Phase Five: Explication

It was difficult to determine how I might describe the various layers of meaning that were becoming evident, and at various times, I experimented with painting, drawing, writing poetry, and imagining characters in a play or a novel that I might write, but all of these attempts were suggestions from others that although interesting, did not internally feel right for a comprehensive explication of my work. I recognized that in order to be true to myself, I had to find my own authenticity (Moustakas, 1990; Sela-Smith, 2002a), and eventually, the explication phase became clear. Because I believe so deeply in a three-dimensional approach to learning, it was important that I find a way to represent my research in terms of mind, spirit

and body. I decided to create a set of four written lenses to integrate the "mind" component; to relay a series of empathic stories to capture the "spirit" component; and to design an interwoven mandala shawl of hand-knitted concentric circular patterns to represent the "body" component.

Phase Six: Creative Synthesis

When I began to assemble the components of the research, it became a "time of synchronicity, harmony, connection and integration" (Sela-Smith, 2002, p. 69). Once the lenses were in place, I then took the time and space necessary to ponder and sift through my considerable data, and as a response to Berry's call to situate my story within the *New Story*, to write a number of narratives in an attempt to provide readers with glimpses of the shift of consciousness that I had experienced during the research process.

As I was editing the narratives, I was able to put the books to the side and thoroughly enjoy the challenge of knitting the shawl. Both projects became opportunities to introspectively reflect on the whole of the research inquiry in terms of interwoven connections, empty spaces, transitions, relational experiences, and metaphorical patterns. Interestingly, during these several months of creativity and contemplation, I came to the realization that each component that I had undertaken during the research process represented the story of the inquiry as a whole, and at the same time, each component had become a part of a greater whole—namely, my personal way of being in the world. I came to understand that the multi-dimensional lessons of Thomas Berry had become so deeply ingrained into my being that they could no longer be separated from my own unique story. Berry's call for connection

had served its purpose, and as someone who had experienced and hopefully will continue to experience an integral communion with the Earth, I was ready to apply the heuristic discoveries of my inquiry to my future endeavors as a woman, an educator and a citizen of the Earth. As a result, both the shawl and the stories came to represent for me the artistic and creative synthesis of experiences of mind, spirit and body that are inseparably woven into my personhood that will serve to guide me for years to come.

Establishing Validity, Authenticity and Rigor

Sela-Smith (2002b) proposes that in order to conduct a valid, authentic and rigorous Heuristic Self-Search Inquiry, the researcher must refrain from involving other participants in the study; and the representation of one's qualitative research must indicate the researcher's passionate concern for the focus of the research, evidence of the researcher's surrender to the questions, and representation of the meaningful "story" of the research.

In regards to staying focused, surrendering to the questions, and representing the story, I adhered to Anderson's (2006) following nine guidelines for maintaining authenticity and rigor in non-reductionist qualitative research:

1) Be rigorously subjective.
2) Tell the truth no matter what.
3) Be open to contradictory data.
4) Let the process go in new directions.
5) Write in one's own voice.
6) Favor particular/personal knowledge new and unique to the researcher.

7) Explore experience in a fresh way.

8) Risk personal change and transformation.

9) Create possibilities of healing and wholeness for the future of both the individual and the culture.

Since my heuristic inquiry also had a non-qualitative component, I added another guideline that applied to the theoretical lenses of my inquiry:

10) Carefully reference all academic sources.

In regards to establishing validity in all aspects of my written work, I asked myself the following two important questions suggested by Hiles (2001): "Does [my] creative synthesis present comprehensively, vividly and accurately the meanings and essences of the inquiry? [Have I returned] again and again to the data to check whether they embrace the necessary and sufficient meanings?" As I was preparing the reflection of the lenses and the individual stories for the anthology, I asked myself other questions, such as the following: Am I communicating subjectively? Am I describing an experience to be lifelike, believable, and possible? (Ellis, Adams and Bochner, 2011). Will any aspects of this experience resonate with the reader? Have I as the researcher communicated a gain in compassion, depth of understanding or personal transformation? Does my study provide new vision for the future (Anderson, 2006, p. 44)? Have I effectively communicated moments of clarity and illumination (Braud and Anderson, 1998, p. 3)? Is there a balance between reflection and action in my study? Does any aspect of my research potentially empower others (Lincoln, 2007, and Starr, 2010, citing Guba and Lincoln, 1989)?

After thorough self-dialogue and self-examination, and after sharing my written work with various people whose opinion I trust, I was satisfied that my efforts at establishing validity, authenticity and rigor in all of the components of my inquiry had met the above requirements.

Limitations of Heuristic Self-Search Inquiry

Besides Braud and Anderson's (1998) comment: "the process is difficult, lengthy and consuming" (p. 266); evolutionary psychologist, Maureen O'Hara lists five limitations of heuristic inquiry: 1) There is no way of knowing if the heuristic researcher is right or wrong. 2) There is no guarantee the heuristic investigation will yield new configurations. 3) A heuristic inquiry may not end in a solution. 4) The research might create more confusion than existed previously. 5) There is a risk that the researcher and/or society will not like the outcome (Sela-Smith, 2002a, citing O'Hara, 1986).

From the position of "participant" in my inquiry, my greatest limitation was the time spent inside in front of a computer screen. Because I could not see the screen when I tried to work outside, I spent long (often resentful) periods each day inside doing academic research.

From the position of representing my research, the biggest limitation of integrating my personal experience is that it creates the possibility that my study will lack meaning for those who come from a differing ontological or epistemological perspective. I am aware that my style is one of compassion, of process-oriented relationships, and of simplicity; and that my tendencies of preference are to initiate connections, to make intellectual choices based on

personal values, and to balance action and reflection (MBTI Step 2 Report, 2013). My frame of reference is shaped by the fact that I am a female, a baby boomer, a supporter of the arts, a long-time teacher, a spiritual director, a mother, a grandmother, an environmental advocate and a middle-class citizen of the First World. I am cognizant of the fact that the subjective portions of my representation may not resonate with those who have a more logical, product-oriented or systematic style, and it may take on different meanings than intended to those who approach it from a different frame of reference. That being said, I have made the choice to integrate personal experience in the hopes that it will enhance the layers of meaning for those who are able to relate to some aspect of my journey.

Applications of the Inquiry

This work will contribute to the body of educational literature that explores the integration of qualitative Place-based, Arts-based, Narrative, and Contemplative ways of knowing with rigorous scholarly research. It will also impact my learning, teaching and research in the future. It is my intention to apply the holistic learning gleaned from the integration of the scholarly and participatory components of this HSSI research to the development of future pedagogical processes.

Representation of the Heuristic Self-Search Inquiry

The artistic representations of the inquiry are expressions of my response to Berry's call to integrate my story within the greater story of the universe. A hand-knitted mandala shawl, explained in Chapter Eight, metaphorically weaves all of the threads of the inquiry together, and it symbolizes the point at which my perceptions became an inseparable part of my personhood. The anthology of original stories,

entitled *When the Student is Ready, the Teacher Appea*rs, provide glimpses of the lived experiences of the inquiry process, and they are found in Chapter Nine.

The theoretical representation arising out of the inquiry takes the shape of four lenses I have named *Cosmogenetic, Holographic*, *Inscendent,* and *Non-Dualistic*. The next chapter provides an introduction to the lenses, each of which is explored individually in Chapters Four through Seven.

CHAPTER THREE

INTRODUCTION TO THE FOUR THEORETICAL LENSES OF THE INQUIRY

As stated earlier, it was in the midst of a search for an in-depth understanding of what Berry means by the phrase *Communion of Subjects* that I returned to his writings. I also engaged in conversations with "Berry experts" Brian Swimme, Jim Conlon, Alexandra Kovats and Miriam Therese Winter at two Thomas Berry summer institutes (2011, 2012), and they, along with Mary Evelyn Tucker, (via e-mail correspondence) helped to clarify for me the perspectives that contributed to Berry's orientation. I then once again revisited Berry's work. In sorting through the integrated knowledge found in Berry's writing, I began to recognize four recurring perspectives, each of which considered independently, explains one viewpoint of his *Communion of Subjects* orientation, and as an interconnected part of the whole, provides a lens of its underlying meanings. As I expanded my study to the work of others who had influenced and been influenced by Berry, I came to a clearer comprehension of his multi-dimensional point of view.

I chose the word *lens* to represent four of the perspectives Berry advocates because of its connotation to the process of correction or clarification in the way one *sees* or *views* the world. An analogy of the integrated lenses in a pair of glasses explains the connection. For example, in the glasses I wear, there is a lens that corrects *myopia*, a lens that corrects *presbyopia*, a lens that corrects *astygmatism*, and a *progressiv*e lens that integrates the other three. Each *lens* is necessary and has an independent function in regards to correcting my vision, but it is only when the four lenses are layered inside the frame of my glasses that my vision becomes clear.

In a similar way, each *lens* of Berry's worldview is necessary and has an independent function, but it is only when they are integrated inside the frame of his *Communion of Subjects* orientation that his worldview becomes clear.

I have named the lenses *Cosmogenetic, Holographic, Inscendent,* and *Non-Dualistic*. The words *Cosmogenetic* and *Inscendent* are Berry's words—the first originated from an adaptation of Teilhardian theory, and the second is a word Berry invented to describe a theory of his own. The words *Holographic* and *Non-Dualistic* are mine, and they describe perspectives that I have derived from Berry's writing. Certainly, other areas of Berry's worldview could be explored, but for purposes of responding to Berry's call for connection to the Earth, I believe these four lenses present a holistic picture of his *Communion of Subjects* orientation.

The *Cosmogenetic Lens*, which reveals the story of the Universe, the Earth, life and the human, traces the evolutionary emergence of the Universe, and it makes *Communion of Subjects* connections from the first seconds of its origins 13.7 billion years ago to the present day. The *Holographic Lens,* which explores the fullness of reality, quantum science, and systems theory, makes *Communion of Subjects* connections based on the recent world of scientific discovery that focuses on such concepts as relativity, possibility, creativity and non-locality. The *Inscendent Lens,* which links the instinctual qualities of primordial peoples with the intuitive and imaginative tendencies of people today makes *Communion of Subjects* connections arising from mythic meanings, dreams and visions common to humans in every age. The Non-*Dualistic Lens,* which engages the mind in a way of seeing that integrates all of the other lenses, forges connections through the pathway of contemplative

practice, and it is the personal lens that for Berry, integrates the other three inside the frame of his *Communion of Subjects* worldview.

Each of these lenses explores one theoretical perspective of *inseparability* as it applies to Berry's call for connection to the Earth. The *Cosmogenetic Lens* provides an explanation of such things as the inseparable connections between primordial energies and the energies of today; between the elements of the stars and the elements of human bodies; and between the adaptive capacities of the earliest life forms and the adaptations of the most complex ecosystems on the Earth. The *Holographic Lens* provides a synopsis of such things as the inseparable connections between chaos and creativity; between matter and mind; between waves and particles; and between the implicate and explicate order of all beings that exist on the Earth. The *Inscendent Lens* provides a clarification of such things as the inseparable connections between archetypal energies and dream-time symbols; between human intuitions and animistic instincts; and between primordial wisdom and genetic coding. The *Non-Dualistic Lens* provides an overview of such things as the inseparable connections between subject and object, between human and other-than-human, and between rational and other-than-rational. Together, these lenses provide a multi-dimensional expression of Berry's holistic perspective of inseparability between the human and the Earth.

As a means of integrating the lenses into this work, I have opened the next four chapters with italicized introductions, and concluded them with personal reflections about the layer each adds to the inquiry. The *Cosmogenetic* lens of the next chapter is foundational to an understanding of the other three perspectives.

CHAPTER FOUR

THE COSMOGENETIC LENS

"…We are in trouble right now because we do not have a good story…The old story, the account of how the world came to be and how we fit into it, is no longer effective. Yet we have not learned the new story…' (Berry, 1988, p. 123).

The following is an exploration of the 13.7 year evolutionary Communion of Subjects story of our Universe, as documented by Thomas Berry. Although he does not provide a chronological telling of the story himself, references to the work of Brian Swimme, Mary Evelyn Tucker, Mark Hathaway, Leonardo Boff, Jennifer Morgan, Mary Conrow Coehlo, and other scholars who share Berry's worldview provide details and fill in understandings of the evolutionary story. Berry stresses that those who undertake a shift in consciousness must begin by learning the WHOLE STORY of the Universe, as presented below, in order that they might come to realize that the story of the human cannot be understood separately from the story of the universe. The human section of the story, which is a very recent chapter, explains Berry's critique of the Collection of Objects mentality of the modern Western world. Knowing the cosmogenetic story is central to Berry's call for human connection to the Earth. He states: "There is no way of guiding the course of human affairs through the perilous course of the future except by discovering our role in this larger evolutionary process" (1988, p. 136).

Cosmogenetic Foundations: A Story of Expansion and Emergence

"The discovery that the universe has expanded and is still expanding is one of the greatest of human history" (Swimme & Tucker, 2011, p. 5). Since Albert

Einstein developed his Special Theory of Relativity in 1914, which "articulated the gravitational dynamics of the universe," (Swimme, 1996, p. 71) and Edwin Hubble, in 1929, discovered that galaxies are in a constant state of inflationary movement, scientists have been studying the emergence of the Universe. Building on Einstein's and Hubble's work over the past several decades, astronomers, biologists, chemists, physicists and paleontologists have been developing the tools and "the sensitivities necessary to awaken to the story" (Swimme, 1996, p. 65) of our unfolding Universe. Although there is no knowledge about other universes, and little knowledge about what might have existed before our Universe emerged, it is widely accepted that the material Universe we now experience was originally compressed inside a tiny speck of matter that began to expand when the freely moving random particles within it began physically interacting with each other. As it expanded into a fireball the size of a grapefruit, it established four unified, yet distinct, interactions with determined intensities—gravitational, electromagnetic, weak and strong nuclear interactions (the laws of physics)—and then it erupted into a massive explosion, spewing forth outwardly to create time and space (Swimme & Berry, 1992). The inflation of the Universe is still governed by the four fundamental physical relationships it established in its primordial activity, and it continues to hold immense creative possibilities for complex expansion to this day and beyond.

Much of the science behind the expansion remains a mystery, but scientists now know that the great fireball exploded into elementary particles and anti-particles, filling them with primordial energy. "All the energy that would ever exist in the entire course of time erupted as a single quantum," and "each of the sextillion

particles that foamed into existence had its root in this quantum vacuum, this originating reality" (Swimme & Berry, 1992, p. 17). Within one second, the particles and anti-particles began annihilating each other and disappearing into photons of light, and at the end of a massive extinction, only one billion particles survived. "The entire material Universe was created from these surviving particles, [and the] amount of material in the Universe was set for all time" (Morgan, 2002, p. 41). These elementary bits of matter, which we now know as quarks, leptons, electrons, neutrons and protons, together with the radiant energy in the form of photons have been expanding into highly differentiated beings during the the last 13 billion years.

From the onset, the universal principles of differentiation, subjectivity and communion have ordered the emergence of reality. Originating from the same source throughout time, energy infused particles developed into individual entities (*differentiation*), which gradually self-organized (*subjectivity*) and formed new relationships in an interrelated holistic process (*communion*) that continues to evolve. Berry (1988, 1999) calls this dynamic evolutionary unfolding *Cosmogenesis.*

Berry's Cosmogenetic theory proposes that one of the formative components of a shift in consciousness towards a *Communion of Subjects* orientation involves becoming familiar with the *New Story* of the Universe as science now knows it. (Coehlo, 2002). From the perspective of the *Cosmogenetic* lens, the following is an exploration of the unfolding emergence of the Universe, Earth, life, and the human in an attempt to come to a deep understanding of the evolutionary foundations of the following question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the*

realization that the Earth is a communion of subjects and not a collection of objects?

The Creation of Complex Forms: A Theme of the Cosmogenetic Story

A comprehension of what scientists propose happened during the expansion and cooling of the cosmos in the first three minutes after the flaring forth of the fireball is crucial to an understanding of cosmogenetic creativity. The first step towards such understanding requires a change in perspective to imagine that in the beginning, "there was no outside…[no viewing from a distance]…[because] each point of the universe was in the fire" (Swimme & Berry, 1992, p. 20). Scientists now tell us that if one could look through a lens situated in the interior of the fireball, within one second after the explosion occurred, he or she would have seen a strong surrounding nuclear force (energy) form subatomic quarks into neutrons and protons (matter). At that moment, for the only time in the history of the universe, one would have watched the nuclei of hydrogen being created (the nucleus of a hydrogen atom is a proton), and several seconds later, when nuclear fusion began bringing groups of two protons and two neutrons together, he or she would have seen the nuclei of helium being formed. From the inside looking out during those few seconds, one would have witnessed radiant energy being "captured and converted into matter, [where it was] contained in the nuclei of all of the atoms that [would] ever be" (Coehlo, 2002, p.15). In essence, the nature of every being that has ever existed is integrally related to primordial emergence of hydrogen and helium nuclei created in the first few seconds of the Universe's history.

It would take hundreds of thousands of years before the nuclei of hydrogen and helium would actually form into atoms and establish foundations that were

stable enough for the complexification of matter to occur. For that to happen, electrons would have to join with the nuclei of the elementary particles, but the energy radiated by the photons was too dense and too hot to allow the matter in the particles to come together, and it prevented the nuclei from capturing the electrons needed to create atoms. Between the next three hundred thousand to one million years, the Universe cooled, and the radiation era came to an end. At that point, if one were to look at the Universe from its centre, he or she would see photons begin to move randomly outward through space (in 1964, this low level radiation was discovered on Earth), rather than interacting with the photons nearby. One would also observe the nuclei of particles begin to freely capture the electrons in order to create hydrogen (one proton and one electron) and helium (two protons, two neutrons, and two electrons) atoms. One would be witnessing a highly complex, creative, cosmogenetic process as groups of elementary particles (a million times smaller than the atom) inside of the atoms began to organize themselves into coherent systems. Ninety percent of the atoms of the Universe would become hydrogen, and another eight percent would form into helium. Those microcosmic complex realities not only would act as fully functioning wholes unto themselves, but in time, they would become parts of more complex macrocosmic realities.

Understanding the complexities involved in this formation of the atom marks the beginning of comprehending a central theme of the cosmogenetic process: the ongoing creation of complex forms. As the fireball cooled and electromagnetic interactions occurred between electrons and protons, hydrogen and helium atoms emerged as centers of activity that would order the Universe in a new way. Because

they organized themselves as invisible gases that were electrically neutral, they were able to avoid interactions with photons. The Universe became transparent because light was able to shoot through the hydrogen and helium atoms in straight lines, and the conditions were set for a new, more stable order to take hold. With the photons out of the way, the primordial waves caused by fluctuations in the density of matter grew in force as the Universe continued to expand. Over the next billion years, the forces of attraction gained a slight edge over the forces of expansion, and the gravitational field drew together large conglomerates of luminous and dark matter composed of hydrogen and helium atoms. These large clouds of hydrogen and helium eventually collapsed, broke away from each other and organized themselves into as many as one hundred billion galaxies throughout the Universe (Swimme & Tucker, 2011). The galaxies, although still a part of the larger Universe, became separate systems unto themselves, and individually, they no longer followed the Universe's laws of material expansion. Each remained a fixed size, and as the Universe continued to inflate, the distance between the galaxies increased (and continues to increase) as they moved away from each other in space. The unfolding process involving differentiation, interior self-organization, and communion, which had occurred with the birth of the primordial atoms, repeated itself in the birth of the galaxies. The pattern of cosmogenetic activity was set for the next several billions of years of cosmic development.

Unfolding Cosmogenetic Reality: Omnicentricity

With the formation of galaxies, the concept of "center" began to take on a whole new meaning. If one were to imagine watching the activity of the expanding

Universe from the inside, there would no longer be just one centre because each galaxy now had its own centre. From this point on, one's imaginary perspective would be limited to viewing the expansion of the Universe from the center of only one galaxy. Brian Swimme (1996, 2011) provides an analogy that explains the necessary shift in comprehension: Imagine a loaf of raisin bread that is in the process of rising as it bakes. Imagine too, that each raisin is a galaxy. If one were watching through a lens from the center of the raisin that represented his or her galaxy, one would remain stationary in a fixed position, and the raisin would remain the same size, but the dough (the space) in between the raisin and the other raisins would continue to expand. If someone else were watching through a lens from the center of another raisin, the two people would observe each other moving farther and farther apart even though each of them were standing still on his or her raisin. Each of those individuals would consider him or herself at the very centre of the Universe, and each would be correct. The reason for this is that we live in an omnicentric reality, where the cosmogenetic processes of each part reflect the processes of the macrocosmic whole. Swimme (1996, pp. 84-88) explains:

> …A re-education of the mind is necessary…we have discovered an omnicentric evolutionary universe, a developing reality which from the beginning is centered upon itself at each place of its existence…to be in existence is to be at the cosmic center of the complexifying whole...

Swimme's account of the omnicentric reality of the Universe opens the possibilities for a shift in the way we perceive our own Milky Way galaxy, as it moves around the Virgo cluster of galaxies (Swimme & Tucker, 2011). By tracing

the pattern of creativity that has unfolded and continues to evolve in our place of existence, it is possible to come to a foundational understanding of the evolutionary unfolding of the Universe as a whole. As in most galaxies, within the centre of our Milky Way is a mysterious "black hole," which was formed when highly concentrated forms of matter and energy actually "punctured the very fabric of space and time" (Swimme & Berry, 1992, p. 34). The black hole at our galactic core created density waves of such extreme temperature and pressure that atoms began to fuse together. When this fusion happened, the matter inside the galaxy was transformed into radiant energy (light), and it caused billions of stars to shine.

In the past ten million years, no new galaxies have formed, but new stars have been continuously organized through the actions of galaxies that are structured as spirals. The Milky Way is such a galaxy. The spiral arms that reach out from its circumference are created by huge gravitational density waves. These arms act in a way similar to a spinning pinwheel; as the wave encounters a gas cloud in space, it causes it to collapse into as many as a hundred billion stars, and then it moves on to ignite the formation of a new set of stars. The spiral structure of the Milky Way enables it to be an agent of creativity within the Universe, giving birth to millions of differentiated stars, which in turn will begin to self-organize from within.

Scientists in the twenty-first century have learned much about the stages of development that stars go through in order to achieve their radiance. Specifically, stars are born when a cloud of hydrogen and helium implodes. As the cloud contracts into a tighter and tighter space, the atoms collide with each other, causing temperatures to rise. As conditions become denser and hotter, the hydrogen atoms

begin to dissolve into their elementary particles of protons and electrons. When the temperature reaches ten million degrees, the elementary particles fuse into new stable relationships, and the star is born.

During the million to billion-year life of a star, a dynamic tension between the contracting force of gravitational attraction and the expanding energy of nuclear fusion allows the star to maintain a state of disequilibrium. "Because the star holds itself in this far-from-equilibrium realm, it is capable of creating helium nuclei out of elementary particles" (Swimme & Tucker, 2011, p. 31). When hydrogen atoms are collapsed into protons and electrons, gravity crushes the protons (hydrogen nuclei) so close to each other that they fuse and become helium nuclei; at the same time, the free electrons repel each other forcefully in outward movements, creating a state of tension between the forces of attraction and expansion. The power of expansion keeps the star from imploding until it is exhausted of all of its hydrogen. Then gravity gains the upper hand, and the star begins to collapse into a smaller space. As the temperature at the core of the star begins to increase to approximately three billion degrees, the helium nuclei lose their stability and start to fuse into carbon (fusion of three helium nuclei), releasing enough energy to keep the star in a semi-stable state until the helium nuclei is used up. Then, once again the star implodes further until it reaches a billion degrees, at which point carbon fuses into oxygen (fusion of one carbon and one helium nuclei). As the process continues, heavier metals become synthesized. In very large stars, elements such as the nuclei of uranium and iron are created. But the formation of iron marks the death of the star. Nuclear fusion involving iron does not produce energy, and without energy the star

will lose its ability to expand. Continued contraction will crush all of the free electrons and protons together into neutrons until the star becomes a tiny speck. And then, mysteriously, a great reversal takes place that echoes the primordial flaring forth of the Universe! Inside that tiny speck, elementary neutrino particles, which had been released at the moment the neutrons were created, begin to interact with such incredible force and begin to cause such intense temperatures that in one extreme blast, they flare out and send the super-concentrated elements compressed inside of the star into space. The flaring out marks the star's death, and at that moment, the star releases a supernova of energy and matter "with the brilliance of a hundred billion stars. And as it expands, a stupendous new round of nucleosynthesis takes place, creating the nuclei of all of the elements of the universe" (Swimme & Tucker, 2011, p. 34). When the temperature cools, the nuclei acquire electrons and form into atoms. The eighty-nine chemical elements created by stars—elements such as carbon, oxygen, nitrogen, sulfur, phosphorus, magnesium, calcium, silicon and gold—will hold immense potentiality for new material forms to unfold. Thus, as with other cosmogenetic activity, the death of the star becomes the basis for future more complex, creative events.

Emergence of The Earth: One Part in a Cosmogenetic Whole

Approximately five billion years ago, our solar system emerged out of a supernova explosion. After the death of our mother star, clouds of newly formed elements were blasted throughout the Milky Way, and as they mixed with primordial hydrogen, they formed a nebula that contained a large mixture of newly formed nuclei. Our Sun, a medium-sized star originated from the centre of this

nebula. The Sun generates energy from its core, where its temperature is 15 million degrees, and it contains enough mass to provide energy to our solar system for another 5 billion years. Building upon Einstein's formula for the relationship between mass and energy, (E=mc2) scientists have calculated that the Sun converts four million tons of its matter into radiant energy every second. At its core, our Sun is undergoing the same process of transforming hydrogen into helium that every star follows, and each moment it burns, it releases photons of light, which in turn are providing energy for the planets that surround it.

In the last century, scientists began tracing the planetary formation in the early life of the Sun. Slightly younger than the Sun, at approximately 4.6 billion years old, the planets of our solar system began as tiny balls of stardust called "planetesimals" (Coehlo, 2002; Swimme & Tucker, 2011) located inside a single large spinning disk of dust and gas (Morgan, 2002). These planetesimals were shaped over millions of years as meteors bombarded them, and pockets of matter collided and cohered to each other, gradually absorbing all of the loose matter circling around the Sun. The largest planets, Jupiter, Saturn, Neptune and Uranus, had just enough gravity to attract the lighter elements, but not enough gravity to press hydrogen into the fusion process; consequently, they became gaseous planets instead of stars. The smaller planets, Mercury, Venus, Earth and Mars, which were closer to the Sun, were hit by intense meteor impacts causing them to become molten at first, and eventually they developed rocky surfaces with metallic cores when the molten rock cooled and solidified. Mercury and Mars became rigid all the way to their cores, but Earth and possibly Venus remain in a partially molten state

(Swimme & Tucker, 2011). Pluto, which is now termed a dwarf planet, (www.nationalgeographic.com/pluto/2006), was either captured later, or it was formed out of material not used in the "gas giants" (Morgan, 2002, p. 43).

In keeping with the principles of omnicentric reality in which the unfolding of the parts reflect the unfolding of the whole, if one to were to continue imaginatively viewing the emergent processes of the Universe through a cosmogenetic lens, his or her perspective could now shift to events happening closer to home; namely, in the Earth and the Moon. Scientists tell us that if one could look through a lens from the centre of the early Earth in the Hadeon Eon (before life) of 4,600 to 4,000 billion years ago, one would see a "seething disequilibrium" of newly formed gases and heavier elements rising and falling as "intense gravitational pressure and the heat generated by radioactive decay within the Earth produced a flow of magma as large as Earth itself. The heat gave rise to plumes of matter that floated to the surface and broke through as lava" (Swimme & Tucker, 2011, p. 39). Scientists believe that the Moon came into existence when a large planetesimal collided with the Earth and blasted huge portions of both the planetesimal and the Earth into space, forming a ring of lava around the Earth. The remaining planetesimal liquefied into the Earth's magma, but as the combined masses cooled, they separated and stabilized into the Moon and the Earth. The Moon froze into a fixed entity after a billion years, but its gravitational tidal forces affected and continue to affect the Earth's processes as the Moon orbits counter-clockwise around the Earth. The Earth, unlike the Moon, did not freeze; it remained in a partially molten state as matter rose and fell in disequilibrium. As it cooled and

eventually took shape, it took on an "egg-like" interior, with the heaviest elements such as iron and nickel gravitating to the centre (the yolk), the less dense iron-bearing magnesium silicates forming the mantle (the white) and the lighter, more gaseous elements floating to the surface to form a crust (the shell). Simultaneously, as these layers were being formed, the turbulent atmosphere of the Earth, which consisted of methane, hydrogen, ammonia, carbon and oxygen released from fissures and volcanoes in the Earth's interior, cooled down enough for hydrogen and oxygen to combine into steamy water in the form of torrential rains. The temperature of the Earth still varied greatly, however, and the rainwater was transformed back and forth into liquid, solid and gas. By approximately 3.9 billion years ago, the Earth permanently cooled below the boiling point of water, and rainwater began to form into tidal oceans, which encircled the surface of the Earth. These oceans, held by a thin layer of atmosphere, developed unstable rocky crusts.

Oceanic and continental crust, along with the outermost layer of the upper mantle, formed what is called the lithosphere. Scientists studying the lithospheric layer in the past fifty years have discovered the Earth's oceanic and continental crust is divided into plates between 50 and 250 miles thick. If one were to view the planet from outer space, one would see that these plates look like the outside edges of jigsaw puzzle pieces that surround the continents and oceans.

The tectonic plates change in size over time, and they move slightly upward, downward and sideways as the Earth adjusts to forces from the Sun, the Moon and its own interior (see figure on next page):

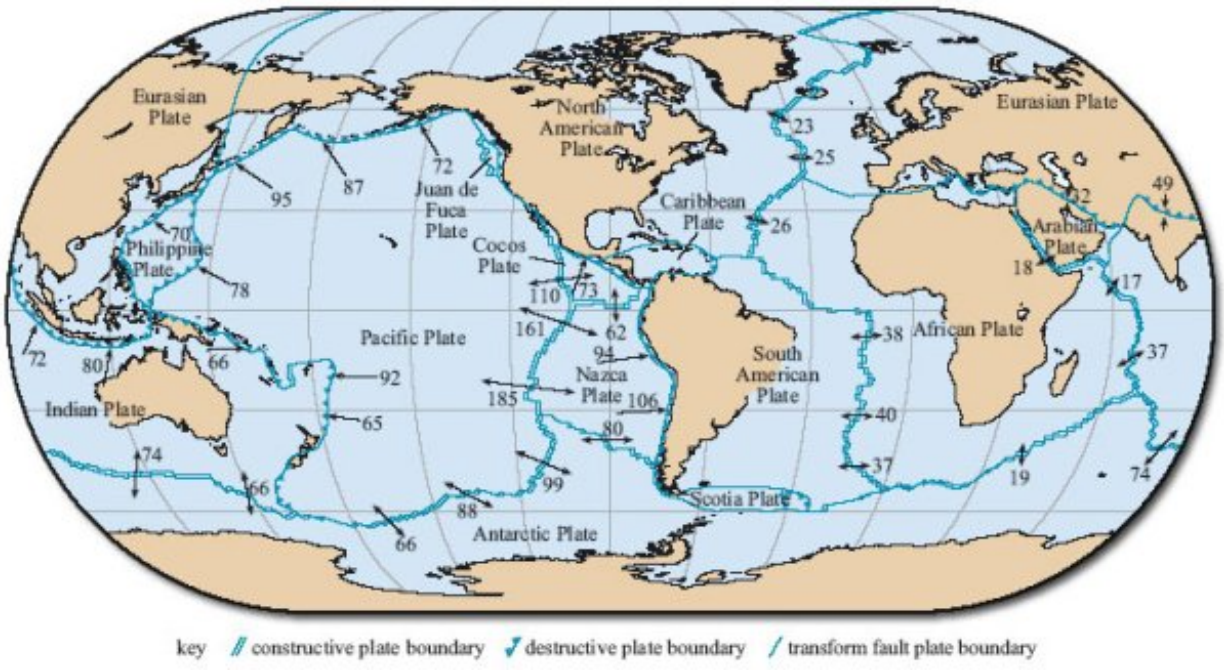

Figure 3. Tectonic Plates www.startimes.com

The theory of plate tectonics, developed in the 1960's, explains the development of the Earth's mountain ranges and the causes of seismic movements at the boundary fault lines of these plates, resulting in earthquakes, volcanoes, and oceanic trenches. The theory also illustrates that the Earth is in a continual state of dynamic self-organization, and as a "self-assembling power of the universe," it is capable of "creat[ing] new structures that allow new forms of creativity to emerge" (Swimme & Tucker, 2011, p. 36).

Emergence of Life on Earth: Integral Connection

The new forms of creativity that emerged in the Archean Eon almost four billion years ago were microorganisms called archaebacteria, the ancient ancestors of all life on Earth. Scientists are still puzzled about the mystery of how life actually began, but they believe conditions in the early Earth were conducive for the early bacterial cell to emerge from matter that was not alive. "In general, we can say that

life as we know it emerged from 'non-living' matter when chemical systems integrated the functions of energy transformation, information processing, and self-replication" (Coehlo, 2002, p. 24. citing Rue, 2000, p. 67). In order for this integration to take place, hydrogen, carbon, nitrogen, oxygen, phosphorus and sulfur, the six elements common to all life, had to be present. In addition, the Earth's temperature range had to be such that the complex molecules of sugars, amino acids, and nucleotides could combine with water, carbon dioxide and other smaller molecules to form bio-molecules. When these conditions were met, scientists hypothesize that bio-molecules essential to all life emerged in the form of ribonucleic acid (RNA) and deoxyribonucleic acid, (DNA). RNA molecules were flexible; they were able to store, carry and process genetic information; they could copy and reproduce themselves, and they could conduct chemical reactions. DNA molecules were more complex and stable than RNA; they were formed from single loops of carbon, and they carried information that could be passed down in a genetic code system, which became vital to all living things.

Archaebacteria were prokaryotic cells, which means "cells before the true nucleus," (Coehlo, 2002, p. 24). Their DNA, which guided them in staying alive and adapting to their environment, floated loosely around inside these cells; for this reason, bacterial cells were able to share and transfer genetic information to other cells, and to adapt easily to new environments. They readily accessed energy from the elements in their surroundings, and they reproduced quickly by splitting themselves in two. As they spread, some of the archaebacteria evolved into a second kind of prokaryote called eubacteria, and both of these bacterial cells spread

rapidly throughout the oceans on the Earth; to this day, the basic structure and function of these members of what is now called the Monera Kingdom has not changed, and they continue to live almost everywhere, including inside of other living things.

The eubacteria cells "invented photosynthesis, respiration, and most other metabolisms" (Morgan, 2003, p. 44). Although they cannot say for certain how they did it, scientists now know that these early microorganisms began to fuse together elements from their surroundings and shape them into chlorophyll molecules, which in turn were able to capture photons from the sun, and convert them into energy to sustain the life of the tiny cells. Biologist, theologian, and artist, Mary Coehlo reflects on the immensity of this *Communion of Subjects* achievement:

> It is important to pause here to ponder what is happening when the molecules that can capture the photons of the sun are created. We need to remember that both the prokaryote and the sun itself are composed of the elementary particles of the hydrogen and helium atoms, and then into other elements, during the life cycle of early, large stars. These elements become part of the chlorophyll molecule and the biochemical pathways that capture the photons coming from the nuclear fusion of primordial hydrogen in the sun. There has thus developed a remarkable sensitivity and interrelationship between one differentiated part of the universe and another part of the universe: a new intensity of communion. This communion is a fundamental characteristic of the universe (2002, p. 26).

In the process of photosynthesis, the eubacteria cells actually changed the

conditions of Earth's atmosphere over the next billion years. The photosynthesizing bacteria became able to take carbon dioxide out of the air, and this led to a decrease in the Earth's temperature. In addition, when the bacteria extracted hydrogen from water, oxygen gas was released into the atmosphere. At first, in its search for electrons, oxygen reacted with other elements and was absorbed into the rocks, but after a billion years, oxygen became plentiful, and as it began reacting with other compounds, it began destroying life forms. By 1,900 million years ago, oxygen had caused the first massive extinction on Earth, as it killed almost all of the early cells.

But two transformations that would gradually change planetary dynamics happened as a result of the oxygen crisis. The atmosphere's oxygen eventually stabilized at twenty-one percent, and the free oxygen that had moved to the upper levels of the atmosphere interacted with solar energy, and was reconfigured into an ozone shield. In addition, the crisis initiated a transformation in the eubacteria itself, and a type of bacteria was formed that was capable of using oxygen and releasing carbon dioxide in the process of respiration. The respiration process created a superior source of metabolic energy, one that would support more complex life forms; and the ozone layer, which protected the Earth from ultraviolet radiation, would make possible the spread of new life beyond the oceans. Both of these alterations resulted from opportunities arising at a time of crisis within the self-organizing powers of the Earth, and together, they laid the foundation for further creativity to take place in the next two billion years. Once again, the pattern of chaos leading to creative action repeated itself in the cosmogenetic process.

Understanding the integral connection between this first emergence of life

and one's own existence is an important foundational step in a shift of consciousness towards a *Communion of Subjects* orientation (Berry, 1988, 1999). When one becomes consciously aware of how fragile life is, and also begins to recognize the complex underlying interconnected processes that sustain it, one's perspective begins to shift. Swimme and Tucker (2011) illustrate this reality:

> After life had seeped into the functioning of the planet's systems, a great emergence took place. A living planet—a complex, self-organizing system—arose with the capacity to maintain the delicate conditions of life…the surface temperature of Earth cannot vary too far in either direction, or life will disappear. Our planet's average temperature was thought to be a fortunate consequence of being just the right distance from the Sun—ninety-three million miles… we now know that over the past four billion years our Sun has increased its temperature by nearly 25 percent.
>
> The astonishing implication of this is that Earth has adapted itself so as to remain in the narrow band that enables life to flourish. By drawing carbon dioxide out of the atmosphere via photosynthesis, Earth altered the composition of its atmosphere to keep itself cool as the Sun grew hotter. …This dynamic of reorganization is possible because of life's most essential capacity—its power to adapt (p. 56).

Complexity in Ecosystems: Multicellularity, Sexuality, and Death

With the emergence of oxygenated systems, conditions during the early Proterozoic Eon (2,000 to 540 million years ago) were optimal for organisms to adapt, flourish and spread. The first new type of oxygenated life form to develop

was the eukaryote. A eukaryotic cell, also known as a protist, had a true nucleus that protected its DNA inside a membrane, and it reproduced through a sophisticated process called *mitosis*, in which the genetic material in the nucleus was split and passed on to daughter cells. Surrounding the nucleus of the eukaryotic cell were tiny bacteria called mitochondria, which became the powerhouses of the cells; mitochondria were capable of respiration, of interacting with thousands of types of chemical elements around them, and of producing ATP, the universal energy compound for metabolism (www.biology-online.org). All of the cells in the bodies of fungi, plants and animals (including humans) are descended from protofungi protoplant, and protoanimal eukaryotic cells (Swimme & Berry, 1992); and the mitochondria organelles inside many of these cells are descendants of ancient mitochondria. Because single-celled bacteria divide and mutate themselves with no residue, they never die naturally; therefore, "it is possible that the clones of the earliest bacteria (prokaryotes) are still with us" (Coehlo, 2002, p. 30).

Other major developments happened during the Proterozoic Eon. Some time between a billion and two billion years ago, predator eukaryotes began to prey on other cells, and heterotrophs (organisms which cannot make their own food) emerged with primordial mouths. These developments became the foundation for complex ecosystems to take shape. In addition, eukaryotes began dividing themselves into new cells in a process called *meiosis*, a form of sexual reproduction between the nuclei of two cells. This opened up new, varied possibilities for life.

Multicellularity appeared about the same time as sexuality, and as multicellular organisms began to pass down genetic information through special

cells called gametes, adaptations occurred to ensure that their offspring would survive and carry on the gene line. Occasionally, as DNA from the mingling cells was copied, mutations would occur that were either lethal or beneficial to the organism, and in the latter case, creative adaptations were passed along to the next generation. But this reproductive process also brought about another major adaptation, and it became necessary for multicellular organisms to create an internally programmed type of mortality called "apoptosis," (Morgan, 2003, p. 42) which caused some cells to die as other cells developed. For the first time in the evolutionary story, death occurred in the life cycle of an organism.

Once the internal programs of the basic systems were established, cells began specializing in predation, waste disposal, and spontaneous movement. Approximately 670 million years ago, in certain areas of Earth, some Eukaryotic cells evolved into colonies of thousands of flat, segmented and leaf-like soft-bodied cells that had the self-organizational abilities to take on different functions for the well-being of the group as a whole. Scientists now know these particular eukaryotes, whose fossils have been found in Australia, flourished for about 100 million years, but they did not survive a massive extermination of the planet's organisms at the end of the Proterozoic era when Earth became engulfed in "possibly its most extensive glaciation … [and a]n entire era with two billion years of adventure came to a shuddering close…" (Swimme & Berry, 1992, p. 111).

Genetic Memory, Adaptation and Cooperation: Eukaryotes Abound

If one were to imagine looking through a cosmogenetic lens as the Earth transitioned from the Proterozoic Eon to the Phanerozoic Eon, within the first

several million years, he or she would see ocean life begin to rebound and move out into the skies and onto the land. Besides the Bacteria and Eukaryote Kingdoms, one would begin to differentiate life into three more biological kingdoms—the Fungi, the Plant, and the Animal—and within each, to see life evolve into hundreds of thousands of species. If it were possible to continue watching throughout the years, one would see individual "subjects" of each species begin to self-organize, adapt to the conditions surrounding them, and undergo genetic transformations in their DNA patterning as they passed from one generation to the next. And if one watched long enough, it would become apparent that the unfolding processes undertaken by each subject during the course of its lifetime were integrally connected to the ongoing processes undertaken by every other subject throughout time and space.

Scientists have the most physical evidence of differentiated eukaryotic life forms from the Phanerozoic Eon, which began approximately 540 million years ago until the present. They have been able to gather enough fossil evidence to divide evolutionary development of this period into three geologic segments, each of which is separated by episodes of great extinction: the Paleozoic (570 to 230 million years ago); the Mesozoic (230 to 66 million years ago); and the Cenozoic (66 million years ago to the present). At the beginning of the Paleozoic era, ninety percent of all life existed in the oceans, and fossils from the Animal Kingdom (multi-cellular eukaryotes that eat other living things) indicate that underwater invertebrate (anthropods) and vertebrate (fish) life forms that existed at that time were complex. Between about 570 and 530 million years ago, much diversification occurred in marine life during what scientists call the Cambrian explosion, when the lineages of

almost all animals living today appeared (http://www.pbs.org/wgbh/evolution/). Molecular biologists have learned much about adaptations that evolved from the fossils of trilobites (extinct anthropods with an exoskeleton), the first hard-bodied ocean organisms, and from the fossils of early fish, (which gave rise to jawed fish with backbones). Both had complex nervous, muscular, reproductive, respiratory, and digestive systems; they also had powerful sensory organs. Trilobites had remarkable compound eyes with lenses made out of calcite crystals backed by photosynthetic bacteria that alerted their brains when food sources or predators were nearby (Morgan, 2002; http://www.fossilmuseum.net/Evolution/). Early fish had water-based eyes (very similar to human eyes) that were equally efficient (Swimme & Tucker, 2011). The features of both, along with those of other ancient water creatures such as worms, lancelots and jellyfish developed and diversified over the next 300 million years through the complicated physiological processes of genetic memory, adaptation and cooperation. The capacity for memory in the DNA molecules assured that information containing genetic patterns for survival was passed on from one generation to the next, but occasionally, when random mutations occurred in an organism's genetic patterning, it became necessary for the organism to reorganize the sequence of information contained in the genetic materials in order to adapt to the change. This information in turn was passed on through the DNA memory, and as a result, slightly more complex and efficient differentiated life forms emerged in future generations, at the estimated rate of one in every hundred thousand replications (Swimme & Berry, 1992). Often, creative transformations resulted in response to conditions of violence and destruction,

especially in the natural selection process of predator-prey relationships, one of the subjects of Charles Darwin's studies in the nineteenth century. True to Darwin's theories, as predators in the seas developed and passed on improved skills to larger numbers of offspring, so too did those being hunted develop greater capacities for escape (Swimme & Tucker, 2011). Animal life became more abundant, and conditions became favorable for many species to venture out beyond the oceans.

Beginning about 500 million years ago, members of the Fungi Kingdom and the Plant Kingdom, which previously had existed only in the water, went through adaptations that allowed them to diversify as well. Fungi, which reproduced through spores, spread rapidly by absorbing soil nutrients through their cell walls, and they in turn enriched the soil through the process of decomposition. Fungi cooperated symbiotically with the plants, which, as agents of photosynthesis, were able to access carbon, a substance which not only enriched the soil, but also provided food energy for other life forms. In the plant world, mosses and vascular plants began to spread on dry land as organisms developed systems that could resist gravity and transport water and nutrients. The vascular plants traded carbon and nitrogen with fungi; and gymnosperms, which brought together male and female gametes to create naked seeds that did not need to be fertilized in water, developed rapidly into forests of coniferous trees that protected themselves with needles.

In the Animal Kingdom, approximately 450 million years ago, spiders, insects and other creatures with external skeletons, segmented body parts and jointed legs (anthropod ancestors of the trilobites; now 80% of animal population) appeared.

Fifty million years later, vertebrate amphibians, the descendants of fish, grew legs, developed lungs and became able to live outside of the water, except when it came time to lay their shell-less eggs. Sixty million years after that, reptiles, the descendants of amphibians, became able to dwell in hot, dry climates as a result of adaptations such as self-sufficient amniotic eggs with yolks and protective shells; scaly, watertight skin that could withstand hot temperatures; and a penis for internal fertilization on land (Morgan, 2003). By approximately 245 million years ago, some reptiles became endothermic, and they were able maintain a warm temperature in cold climates. Unlike cold-blooded creatures that relied on the Sun's heat for energy, these warm-blooded, hairless mammal-like creatures could sustain high level of activity even at night, and this differentiation brought immense changes to the ecosystem as warm-blooded species multiplied greatly.

But approximately 15 million years later, the expansion stopped! After a time of great creativity, the Paleozoic era came to an end, approximately 230 million years ago when a mass extinction (the largest of five) destroyed 90-95% of all of the species on Earth. Scientists know that the extinction involved geological, climatic and atmospheric changes, and that it happened cumulatively with increased periods of severity, but they have no direct knowledge about what caused it (Coehlo, 2002, citing Eldredge, 2001; Swimme & Berry, 1992).

In the next era, the Mesozoic (meaning middle), giant dinosaurs dominated for 145 million years. Descendants from the warm-blooded reptile survivors of the previous age, dinosaurs, which sometimes were several hundred feet long, adapted to their surroundings by standing upright with legs that stood below their bodies.

Their bodies evolved so that they could easily feed on the forests of gymnosperms and run quickly when hunting. They were social beings that travelled and hunted together. Fossil evidence indicates that unlike young reptiles, young dinosaurs depended on their mothers, and dinosaurs exhibited parental care by burying their eggs, and looking after their offspring after they hatched. These structural and nurturing characteristics were shared by the warm-blooded primitive mammals, which began living alongside the dinosaurs about 200 million years ago. Birds, who laid eggs, were also warm-blooded and provided two-parent care for their young, began descending from chicken-sized therapod (beast footed) dinosaurs about 150 million years ago; and marsupial mammals, whose tiny young were born alive and developed within their mothers' pouches, appeared about 124 million years ago.

Near the end of the Mesozoic era, about 110 million years ago, flowering plants called angiosperms appeared, and with their development, many new varieties of plants, insects and animals began evolving, and interconnected relationships between species became more pronounced. Angiosperms—which included flowers, hardwood trees, nuts, fruits, vegetables, herbs, grains and grasses—spread much more rapidly than gymnosperms because they produced encased seeds that contained food for their offspring. The angiosperm nuts, fruits and grains became the food source for a wide range of animals, and the trees provided food and protection for the many insects, birds, and animals that were continuing to evolve. Scientists believe that a tiny mouse-like nocturnal mammal, which appeared about 69 million years ago and became the predecessor to the primates, (and to human beings), made its home in the trees. In addition,

angiosperms formed symbiotic relationships with insects, which began pollinating the flowers in return for the nectar that the plants provided, a relationship that continues to this day, when all but 20,000 out of 290,000 species of flowering plants are pollinated by insects, many whose body shapes and sizes have adapted and continue to adapt to the specific needs of individual flowers (Carson, 1962).

Scientists believe that the Mesozoic Era came to an end after a huge asteroid impacted what is now Mexico, penetrated the Earth's crust, and instigated a major extinction. It is in the unfolding story of this extinction that one begins to retroactively comprehend the immense interconnectivity within Earth. When the asteroid created such vast quantities of dust that it blocked the sunlight, the plants could no longer undertake photosynthesis. As a result, the plants died, and the food sources for the plant eaters dwindled. Eventually, those that were dependent on the plant eaters died, and all that were left were a few species of birds and even fewer species of mammals. The dinosaurs were gone, and they would never return.

The last era, the Cenozoic, which began approximately 66 million years ago and continues into the present day, has not only been a time of increasing complexity, it has been a time of interconnected creativity and a time of immense chaos. The early Cenozoic Era, following the Age of the Dinosaurs, became the Age of the Mammals as millions of different mammalian species spread into new environments and impacted the evolution of life forms in all of the other biological kingdoms. Charles Darwin, in 1859, proposed several theoretical principles to explain the "ongoing, intelligent, creative drama," (Swimme & Berry, 1992, p. 138) that continued to unfold in this new era. He described the complex processes by

which "all life descended from a common ancestor…different species came about through random variation and natural selection… …[and]over a long time, slight variations added up to big differences, so big that new species came into being" (Morgan, 2003, p. 44). Contemporaries of Darwin, who disagreed with the emphasis he placed on competition, theoretically proposed that cooperation, symbiotic interaction, and the co-evolution of species in specific bioregions contributed equally as significantly to evolutionary processes (Hathaway & Boff, 2009). Translated into *cosmogenetic* terms, the appearance of different and new species indicated a *differentiation of subjects*; the adaptation and interaction of species with their environments became a matter of *subjective self-organization*; and the passing on of genetic memory to the next generation signified an *interconnected communion* between all life forms on Earth. The foundations for the unfolding of these three principles in the eventual bioregions of the planet were set, and over generations of time, differentiated subjects of the five biological kingdoms would self-organize, adapt and integrate into interrelated biosystems in which each member's existence and survival contributed to the existence and survival of the whole.

Certainly in the Animal Kingdom, within 12 million years of the extinction of the dinosaurs, a large variety of mammals sharing a global genetic heritage differentiated into many different forms, and each began the process of self-organization within their specific bioregion. Monotreme mammals followed their reptilian ancestors and laid soft eggs, while marsupial and placental mammals gave birth to live babies. The placentals differentiated into carnivores (lions and tigers), ungulates (horses, cows and pigs), rodents, bats, primates, and the ancestors of

whales and dolphins. As animals moved into new territories, created niches and established interdependent relationships with other species, they adapted in body makeup, behaviors, and eating patterns that allowed them thrive in the habitat of their choice. Some examples were as follows. Grass-eating mammals developed symbiotic partnerships with surrounding vegetation and with digestive bacteria, and each complexified the evolution of the other. Creatures of the air, earth and sea took on colors and structural features that blended into their environments, providing them with protection from their enemies. Males in various species developed elaborate mating rituals to attract their female counterparts in order to continue their gene line. Females, whose bodies were designed to give birth and to produce milk, utilized creative strategies to bond with, nurture and protect their offspring. Some mammals began mating for life, many developed vocal and body languages of communication (Abram, 1996), and members of the same species began taking on democratic leadership and auxiliary roles for the benefit of the group as a whole (Morgan, 2006). In many species, the size of the brain enlarged as the mammals' patterns of adaptation in their specific niche became more complex.

The Emergence of the Human Story: Further Complexity, Creativity and Chaos

Founder of the Big History Project (www.bighistoryproject.com), David Christian, influenced by Berry's *Great Work* (1999), proposes seven major thresholds in the evolution of the Universe, the sixth of which is the emergence of humans. In order to be deemed a threshold, Christian suggests that "Goldilocks" conditions, in which an extremely precise variety of variables are "just right" must prevail, and the emergence must change the entire course of evolutionary history.

Christian marks the emergence of humanity as a threshold because of the unique self-reflective capacity of the human to articulate knowledge in language, art and other enduring forms. He recognizes the development of the human capacity for "Collective Learning" as a seventh threshold because as humans learned to write and began sharing intergenerational knowledge previously passed down through oral traditions, a foundation was set for the current information explosion that is inciting rapid changes on the Earth in modern times.

Below is Christian's timeline of the whole story of the Universe. It portrays the seven thresholds, and emphasizes the very recent emergence of the human in the history of the Earth:

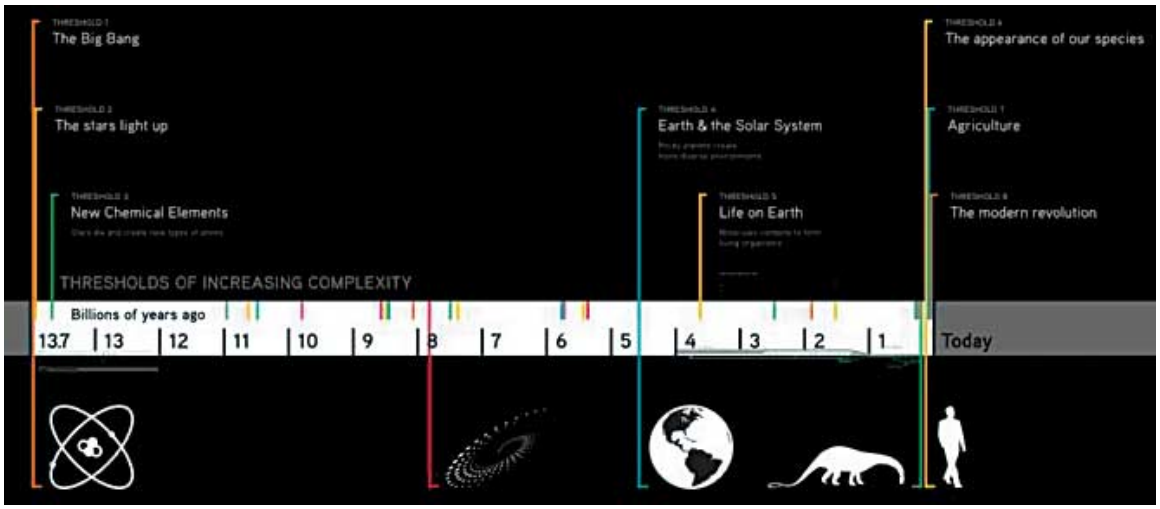

Figure 4: Timeline of the Universe **(**www.bighistoryproject.com)

In terms of evolutionary history, the opening segment of the human story begins with the appearance of the first primate mammals some seventy million years ago (Swimme & Berry, 1992). The tiny mouse-like creatures that had taken to the trees in the late Mezozoic era would eventually give rise to a twenty-million year expansion of primates who largely dwelt in forests in what is now Europe and Asia.

Thirty million years ago, fox-sized primates with ape-like anatomies moved into the forests of what is now Africa, and for the next twenty million years, a line of primates beginning with the gibbons, and developing through the orangutans, gorillas, and chimpanzees, eventually led to the evolution of the hominids approximately four million years ago. As pre-human creatures that swung from tree to tree, these primates developed physical abilities such as frontal focus, concentration, depth perception, eye-hand coordination, sharp eyesight, and quickness of mind—qualities which were preserved in the DNA of hominids when environmental changes forced some members of the primates to move out of the forests, and eventually begin walking with an upright stance (Swimme & Berry, 1992, Swimme & Tucker, 2011). Fossils of footprints found in what is now northern Tanzania confirm that 3.6 million years ago, groups of hominids walked upright with a bipedal gait. With their arms no longer needed for swinging on branches and walking, hominids became capable of more precise hand movements, and they stopped using their jaws for grasping things. This led to changes in the mouth area, which would be foundational for the later development of speech. It also led to changes in the primates' anatomy, and as their legs and spine straightened, hominids were able to use their hands to gather food, make tools, hunt, and express emotions. As they approached increasingly difficult challenges in their environment, their brains began to grow in size. In addition, as young primates began to use their imaginations, engage in playful activities, and learn more skills, the length of their childhood became prolonged.

Some 2.6 million years ago, a mutation in the hominid gene structure

resulted in a species transition, and the first human, *Homo Habilis*, appeared. Tools and fossils found in Kenya, Africa, indicate that these first humans were gatherers, hunters and meat eaters with smaller teeth than their predecessors. Their work with stone emphasized an appreciation for both efficacy and esthetic beauty.

Approximately 1.5 million years ago, the next stage of humans, *Homo Erectus* emerged in Africa, but they soon expanded their territory to include Asia and Southern and Western Europe. During this period, stone tools and implements for hunting and gathering became more sophisticated, and animal skins were used for clothing and shelter. As *Homo Erectus* moved into the Northern Hemisphere, they discovered the use of controlled fire. Mastery of the skill of fire-making marked not only a significant development of human control over a powerful force of nature, it also established an important distinction between humans and other species, and it symbolized a psychic impression of social consciousness between members of the same species. The hearth became a symbol of the place where "the family, the band, the clan, the tribe" (Swimme & Berry, 1992, p. 149) gathered together to prepare food and keep company, unified in social and cultural cooperation.

A Narrowing of Focus: Berry's Interpretation of Homo Sapiens History

Approximately two hundred thousand years ago, the human species developed into *Homo Sapiens*, the most recent human stage from which all contemporary people have descended. From this point on, if one were to imagine viewing the last 200,000 years through Berry's cosmogenetic lens, the focus would narrow and become interpretive and diagnostic. Berry's concentration now centres on the emergence of the human, and his *Communion of Subjects* orientation is now

clarified in regards to his understanding of the cosmogenetic unfolding of the human story as it relates to the emerging story of the Earth. In his role of cultural historian, Berry's phrase *shift of consciousness* applies to his study of the historical ages of cultural development of the human members of the Earth community.

Berry's Four Ages: Distinctive Themes, Transitional Declines, Psychic Changes

In the methodological style of Giambattista Vico, Berry divides homo-sapiens history into ages marked by distinctive characteristics of human consciousness particular to each era, and by times of transition that signify periods of decline leading to psychic change. Much of Berry's interpretation of human history involves a study of the relationships and the exchanges of energy between the human, the numinous, and the natural world. He defines the natural world as the human and other-than-human community of the Earth, and he defines human "psychic energy" as the unseen *spiritual* or *soul* energy associated with awe, mystery and wonder (1988, 1999). Berry's cosmology recognizes the unique role that humans have played in the most recent history of the Earth, but he emphasizes that the integration of the sequence of transformations involved in the unfolding human story are but an inseparable continuation of the greater story of the ever-emerging universe. In each of his four ages of human history, delineated by rather blurry phases of transition, Berry thematically explores the accomplishments and diagnoses the weaknesses of human influences, and in his vision for the future endeavors of humanity, stresses that modern-day humans, and in particular humans in the Western world, must reconnect to the psychic energies of previous ages which historically have strengthened human relationships with the Earth

community. Berry (1988, 1999, 2006) often refers to the first three ages of human history as the *Tribal-Shamanic*, the *Classical-Religious-Traditional*, and the *Scientific-Technological-Industrial*, and he believes that the human species is now in a transitional phase which he calls the "*Emerging-Ecological*" (Berry, 1988, p. 104). He asserts that at the present critical time in the unfolding story of the universe, as the *Scientific-Technological-Industrial* age of human history is undergoing a sequence of transformations in preparation for a new age, so too, is the 65-million year *Cenozoic* era of the Earth coming to a close.

For purposes of focusing the Cosmogenetic Lens on the transformational sequences that have taken place on Earth since homo sapiens first appeared, it is necessary to summarize Berry's "patterns of interpretation" (1988, p. 139) regarding the significance of each of his four ages of homo sapiens history in order to attain an overview of his *Communion of Subjects* vision for the future role of humans on the Earth. It would take volumes to represent an understanding of even the major factors that have contributed to Berry's perspective about the unfolding human segment of the cosmogenetic story, but the following descriptions encapsulate briefly some of the major themes that repeatedly appear in his writing.

The Tribal-Shamanic Age

Berry refers to the primordial phases of homo sapiens development as the *tribal-shamanic* age of Earth-human-cosmic relationship, and he describes this first age as a very long period of human history in which the energies of goddesses and gods fueled the energies of the cosmos and of human expression (Berry, 1988; Dalton, 1999). Berry describes the predominant modes of human consciousness

and activity in this era as a time when human consciousness was shaped by an "[a]wareness of an all-pervading mysterious energy articulated in a variety of natural phenomena" (1988, p. 24), a time when great mythic creation stories and cosmic rituals provided the context for ultimate cultural meaning. Berry describes this age as follows:

> [Humans] lived in a world dominated by psychic power symbols whereby life was guided toward communion with our total human and transhuman environment…sustained by a cosmic presence that went beyond the surface reality of the surrounding natural world…[enabling humans] over a long period of time to establish [them]selves within a realm of consciousness of high spiritual, social, and artistic development…(1988, p. 39).

Although little is known about the details of this phase of human history, Berry traces the development of the earliest human cultures of the Paleolithic and Neolithic periods to their relationship with the landscape of the Earth. *Homo Sapiens* began as a wandering people who developed the ability to adapt to a great variety of geographical terrains and environmental conditions, especially during the Ice Ages, which began 70,000 years ago and spread across the territories that people would eventually inhabit. It is believed humans began moving out of Africa into Asia and Europe roughly 120,000 years ago; they reached Australia about 40,000 years ago, and they migrated into North and South America 20,000 years ago (Coelho, 2002).

Paleolithic culture is divided into two phases. In the Middle Paleolithic culture, which developed from120,000 to 40,000 years ago, archaic humans called Neanderthals with large brains (larger than the brains of modern humans) and

muscular bodies lived in caves in large portions of Europe and Asia; they refined tools, used fire extensively, established religious, seasonal and ceremonial rituals, and consciously participated in the life and death cycles of Earth's biosystems. When numbers of Neanderthals declined, the Cro-Magnon peoples of the Upper Paleolithic period became an overwhelming presence in Europe and beyond, both as technological innovators and as creative artists. Faced with significant variations in climate resulting in volcanic eruptions and changes in the biosystem throughout the Northern Hemisphere due to the final glaciation of the Ice Ages, the Cro-Magnon people quickly learned how to adapt to their surroundings in Eurasia and the Americas. Capable of brilliant artistic expression, communication with spoken language and a shamanic insight for communing with numinous powers; they accumulated traditional knowledge—geological, geographical, biological, anatomical and botanical—and established values and norms of behavior through oral systems of cultural coding (Berry, 1988). Evidence of their cultural development indicates they were aesthetic and relational people who carried a "native wisdom…passed down through the generations…in their customs, songs, and rituals; in their arts, their poetry; and in their stories…" (Berry, 1999, p.177).

As their capacity for communication increased, *Homo Sapiens* became a planetary species with an increased capacity for reasoning and communal decision making, with the result that many changes took place at much quicker paces than in previous periods. When the Upper Paleolithic phase, which represented a population of over a million people, gave way to the Neolithic phase approximately 12,000 years ago, members of differentiated cultures in all parts of the planet began

articulating and giving expression to their new state of conscious awareness of their inner feelings and their outer surroundings. Thousands of languages were born, and with them, enduring cultural, educational and religious traditions were established. Neolithic humans were in a unique situation. At a time when they still felt powerless amongst the awesome and terrifying mysteries of the universe, they were developing creative ways to assert more control over other species—and at the same time, they were discovering the freedom of creating differentiated systems of language—primordial power words (Swimme & Berry, 1992) which articulated for them sensual, somatic and resonant (Abram, 1996) expressions of profound meaning and reality.

Although they inhabited every continent, the greatest numbers of Neolithic people settled in Southwest Asia, Northeast Africa, and the continents of the Western Hemisphere, where between the period of 8000 and 3000 B.C.E., humans began moving out of caves and temporary encampments and forming small villages. In most Neolithic villages, at a time when the fecundity of the universe was primarily associated with female images, and family identity was established by matrilineal descent, women took on cultural, religious and social leadership roles. Women were instrumental in establishing community bonding, shared decision-making, and the pursuit of artistic endeavors. Berry, who regards feminine wisdom as one of the four sources of wisdom which will take modern-day humans into a more sustainable age, recognizes the feminine influence of Neolithic times as neither "matriarchy…nor social program, [but] a comprehensive cosmology of a creative and nurturing principle…" (Berry, 1999, p. 183). He portrays the way of life of the

Neolithic village, which he considers as a potential model for an ecologically balanced and sustainable way of life, as a self-sustaining and socially ordered community that existed in healthy relationship with its ecosystems (Berry, 1999; Swimme & Berry, 1992). In addition to hunting and gathering, female and male members of the Neolithic village built huts, cultivated the land, established trade with other villages, and built shrines for religious worship. The deities (mostly female) were held in a place of utmost respect in human consciousness, and although the style of veneration varied from continent to continent, people in every place on Earth, awed by the mystique of the natural world, established intimate relationships with the spiritual powers of their cultures. The figurehead of the Goddess prevailed, and she was a symbol of meaning, security, and creativity.

But, the tribal-shamanic age underwent an inevitable transformation as people in several cultures continued reflecting on their thoughts, dialoguing with each other, and in some cultures, began developing systems of writing. "A new power of reflexivity" (Abram, 1996, p. 107) was coming into existence. As the capacity to express one's thoughts and to communicate with each other increased, the human species was propelled away from the conformity of the tribal-shamanic cultures and towards a new period of history. The next age, which Berry calls the *Classical-Religious-Traditional*, would be characterized by a human psychic consciousness that was dominated by the human imagination (Tucker, in Berry, 2006), and it would lead to "increased social stratification, sacrificial rituals, articulated theologies, and spiritual disciplines in what are now considered the great civilizations of the world" (Dalton, 1999, p. 2).

Berry's interpretations of the Paleolithic and Neolithic stages of the tribal-shamanic age of human history emphasize his high regard for Indigenous wisdom, another of four sources of wisdom that he proposes will take humans into the future. He writes:

> We now appreciate the more primitive stages of [humankind's] awakening consciousness…These stages of human development have left an abiding impression in the depths of the human psyche, just as the various geological ages remain in the very structure of the earth, and as existing primitive peoples maintain the living cultural forms through which the higher development of humanity has passed (Berry, 1974, pp. 172-73).

Early Civilizations: Foundations for Berry's Era of Classical Traditions

After 3000 B.C.E., when the population of Earth had reached approximately 15 million people, Neolithic villages evolved in three ways. Some such as Sumer and Egypt moved towards technological advancement, distancing themselves from the natural world and developing into urban hierarchal civilizations where patriarchal control, which was validated by the divine authority of an increasing number of male deities, took hold. Some in Africa, Australia, the Pacific Islands and North and South America maintained their Paleolithic roots while incorporating aspects of Neolithic settlements, and they continued to develop in integral relationship with the sacred Creator, with the spirit world, and with the creative and destructive natural forces of the Earth (as in the case of Canadian Indigenous peoples), until Western colonial powers arrived and disrupted their balanced way of life (Berry, 1988; Ryser, in Little Bear, Boldt, & Long, 1984). The third continued on for

thousands of years as eco-villages in the margins of Eurasian urban centres, with few changes in their cultural, religious and artistic practices.

The most significant change in consciousness in this time period occurred when people in Sumer, Egypt, China, and the East Asian world began developing systems of writing. As people became inspired by inner spontaneities, as they searched for meaning in the awesome mysteries and dangers of the Earth, and as they connected to the numinous realities of the spirit world, for the first time in history, they were able to preserve their stories. Ideas became permanently recorded in mythic and historical narratives, in wisdom reflections, in sacred writings, and in poetry, prose and drama. The foundations were set for people of future generations to build upon the creativity of those who came before them. Swimme and Tucker (2011) explain the implication of this:

> Nothing this significant had happened in the life process since the emergence of the DNA molecule...The great insights of humans could now be preserved in painting, poetry, and prose, so human culture became a kind of DNA outside the body (pp. 88-91).

This was the age when the major world religions emerged in their traditional forms (Coehlo, 2002). Berry describes it as the era of the great classical civilizations of the Eurasian and American worlds, "the age of Confucian China, of Hindu India, of Buddhist Asia, of the ancient Near East, of Islam, of medieval Europe, of the Toltec, Mayan, Aztec, Pueblo and Incan civilizations of Central and South America" (1988, p. 39). He regards it as the age when deep values and ethical traditions were established, principles which have "directed our religious and cultural traditions

over the past millennia" (1999, p. 101), and have guided the human project with "noble ideals [and] enduring insights" (p. 188) throughout history until now. Berry credits the classical age as giving to humanity sophisticated patterns of "linguistic expression, of religious formation, of spiritual disciplines; its critical understanding in the arts and sciences; its political and social structures; its ethical and legal norms; its advanced craft skills; and its popular recreations" (1988, p. 102).

About the accomplishments of this period, Berry states: "To list all of the achievements of this period in the various civilizations or even in the Western world would be an overwhelming task" (1999, p. 187). After the third millennium B.C.E., great advances were made in every area of everyday life—in food production, mining, land and water transportation, irrigation and sewage systems, stone working, lumber milling, carpentry, architecture, weaponry, and use of animals for wool, food and power.

But alongside the lasting legacies of this period of classical traditions, Berry points out that patriarchal establishments were gradually strengthening their roots in the Western historical process, and "however brilliant in some of their achievements" (1988, p. 145), they were developed "primarily for fulfillment in terms of the human as envisioned by men" (p. 146). In the large civilizations in the Eurasian world, where patriarchal pursuits were continually expanding, humans in power began to increasingly view the natural world as a resource for human use rather than something to be appreciated for its intrinsic value. When the Neolithic Agricultural Revolution began, inter-dependent bio-systems were disrupted by human control of the crops that were planted in the

soil, often destroying the niches of plants, animals and insects. And as civilizations grew, male rulers emerged; and as trade increased, slavery and oppression became a reality, and other humans (often women and children) also became objectified and devalued by those who were in power. Social psychologist and advocate of Berry's cosmology, Diarmund O'Murchu (1997) explains:

> The issue of power is closely related to warfare. Here I am referring to the use of power in a masculine, rational, competitive, and compulsive manner, leading to the subjugation of some people by others, along with the notion that the earth (and cosmos) exists to be conquered and controlled according to human whim and fancy. In other words, human beings try to play God, assuming that in God's name they will do what is best for all, thus failing to recognize that there is also a shadow side to the God-power, which often manifests itself in barbarity, crime, destruction and warfare (p. 155).

Berry, who focuses on the major causes that led to the separation between the human, the divine, and the natural world in terms of the Western historical process, critiques the roots of discontinuity that gained momentum during the *classical-religious-traditional* period, and eventually contributed to a shift in consciousness that would further alienate humans from the numinous and the natural in the next era of Western human development. Like O'Murchu, Berry believes one of the alienating factors was the rise of patriarchal power in the classical empires and in the ecclesiastical establishment.

Berry traces the patriarchal power of the classical empires to the rulers of Sumeria, Egypt, Assyria, Babylonia and Greece, where "much oppression coexist[ed]

with such splendid achievements" (p. 146). He then explores the sequence of empires from the Persian to the Macedonian, Roman, Chinese, and Indian, where "fully organized political rule over a diverse association of peoples" (p. 146) took hold. Lastly, he scrutinizes the influence of the Byzantine, Holy Roman, Spanish, Dutch, British, and Russian expansions in terms of the control they established in the name of the divine. He states:

> These empires took on cosmic symbols and established their power relationships either through the birth of the ruler as divine king, as incarnations of cosmic power, or through religious coronation ceremonies. The difficulty with patriarchy is precisely that it is something more than a social or political arrangement or institution. Patriarchy reaches far back into the cosmological structure of existence and even into the ritual, moral and belief commitments of religion (p. 147).

Berry is also critical of the gradual shift in consciousness that occurred within the patriarchal ecclesiastical establishment "when the biblical-Christian emphasis on the spirituality of the human joined with the traditions of Greek humanism to create an anthropocentric view of the universe" (1999, p. 136). As the main determinant of reality and value in the history of Western civilization, "the church was the single comprehensive, transnational authority in the Western world for more than a thousand years. By baptism a person obtained membership in both the civil and religious society" (pp. 148-49). Within the early church, the male hierarchy afforded those appointed "by divine determination" (p. 150) the authority to create and enforce not only religious laws and moral discipline of European

society, “but also its intellectual and cultural formation” (p. 149). Berry points out, as evidenced by the Crusades in medieval times, that economically and politically powerful church leaders, as esteemed intermediaries between Heaven and Earth, used their influence to engage the military to enforce laws that contributed to alienation, oppression and disregard for the natural world.

But Berry also states that not until the latter part of the classical period did a radical shift away from the psychic powers of the universe towards a deeper engagement with the physical structure of the universe occur (Berry, 1999; Dalton, 1999). In terms of the separation between the human and other-than-human members of the Earth community, Berry acknowledges that in the early centuries of Christianity, “the natural world was considered as manifestation of the divine” (Berry, 1999, p. 136) and as the locus for the integral relationship between the human, the divine, and the natural world. But, he explains that because the belief structures of the church were centered around a dualistic “biblical, Christian humanist matrix” which presented a “transcendent, personal, monotheistic, patriarchal deity” (Berry, 2006, p. 26), the perception of the Earth “as a single integral community...was in the course of centuries diminished by excessive emphasis on the human as a spiritual being aloof from the physical universe” (Berry, 1999, p. 137). By separating the spiritual potential of the human from the temporary, material nature of the visible world, “the natural world bec[ame] an external objective reality that [could] be dealt with only in subservience to that high spiritual reality for which all things exist” (Berry, 2006, p. 26). In addition, the biblical account of creation took a back seat to the need for redemption from a state

of Earthly sinfulness inherited by all humans because of "the breakdown in human-divine relations" (Berry, 1988, p. 150). Berry interprets this emphasis on redemption as contributing to a loss of the sense of sacredness, reverence and connectedness to the natural world that was preserved in the Eastern religious traditions. This interpretation is at the root of his controversial statement that the Bible should be placed on a shelf for twenty years in order that humans might reconnect to the revelatory power of creation (Berry, 1988; Fox 2011, in Laszlo & Coombs).

Nevertheless, despite "the deficiencies of medieval theological thinking," for Berry, the non-dualistic influence of thirteenth century theologian, Thomas Aquinas, set the context for a return to a cosmic state of consciousness in which the spirit was recognized in all of living matter. Berry often cited Aquinas' statement: "Faith comes in two volumes: Nature and the Bible" (Fox, 2011, p. 25, in Laszlo & Coombs), and Berry believes that Aquinas' scholastic philosophy effectively countered the dualistic separation of transcendent spirit and Earthly matter present in earlier Christian thought (Fox, 2011, in Laszlo & Coombs). Aquinas' written works integrated Aristotle's scientific cosmology of wholeness within the Christian tradition, and for Berry, established "the primacy of the universe over any part of the universe" (1999, p. 77). Aquinas' philosophical approach prevailed until the latter part of the classical period (Dalton, 1999). Citing Aquinas, Berry states:

> Even the incarnation and redemption as these are presented within the Christian tradition must be considered as primarily for the good of the universe even though these have a certain immediate reference to the human.

> As was said at the time: "The whole universe together participates in the divine goodness and represents it better than any single being whatsoever" (p. 77, citing Aquinas, ST, Q. 47, Art. 1).

Historically, Berry believes the shift away from the cosmic consciousness of the classical period was directly related to the plague that struck Europe in 1347 C.E.; from then on, salvation from the Earth rather than communion with the Earth became one of the central focuses of Christianity (Berry, 1988). In subsequent centuries, as the stirrings of transition into a new, more anthropocentric age were gaining momentum, the Western cultural tradition became increasingly detached from the Earth.

In addition, near the end of the classical-traditional period, the feudal states of the medieval era were giving way to separate civil states that were beginning to take shape. Berry regards this movement as a third historical establishment of patriarchal control that would continue to gain momentum as nation-states developed. Berry attributes this movement to a shift in political allegiance away from the ecclesiastical establishment that was troubled by religious problems in the 15th and 16th centuries, and towards the secular establishments of individual nations that were beginning to dominate the European continent. This shift was also influenced by "new literacy, the merchant classes, the new technologies…national assemblies, national flags, national anthems, national educational programs, national economies, national currencies…and the entire range of infrastructures" (Berry, 1988, p. 152) associated with modern industrial societies. Governments and political policies were formed with the ideal of protecting the freedoms of the

people and the nations to which they belonged, but Berry believes they also exemplified "the male values of conquest and dominion," summarized as follows:

> The civilizational enterprise was itself seen as being in the care of the political regime. European nations, especially England, saw themselves as saviors of the peoples of the earth in terms of their civilizing mission. This led to the colonial enterprise, the control of the peoples and lands and resources of the entire planet by the nation-states of the European world. This was all thought to be their sacred historical mission. Even the institution of slavery was brought into this process as a way of relating these other peoples to the higher purpose of the nations that were leading humanity toward its true fulfillment (p. 153).

Berry attributes the establishment of the nation-state as one key factor in the beginnings of a Western dualistic *Collection of Objects* mentality that served to justify the control of those who were deemed to be inferior by those who held positions of power. With the establishment of borders, rulers began fragmenting the planet into nations, races and ethnic groups. Land was amassed, farming became established, skirmishes and wars broke out over territorial disputes, and humans engaged in battles over power, land acquisition, economics, religion and race that continue to this day.

After the 15th century, the *classical-religious-traditional* segment of the human story, which had "established our exalted place within the sequence of the earth's natural rhythms and established those spiritual centers where the meeting of the divine, the natural and the human could take place" was being replaced by a

new effort in the Western world, fueled by the energies of humans who were developing a "capacity for understanding and controlling the dynamics of the earth" (Berry, 1988, pp. 39-40). The last four hundred years of human development in the Western world have been dominated by the scientific, technological, and industrial achievements of the modern era. They are also characterized by an accompanying shift of consciousness towards a mechanized worldview that has had disastrous effects in regards to Earth-human relationships.

As with the case of the tribal-shamanic age, Berry predicts that the values and the ethics of the classical-religious-traditional age, which have been preserved in oral and written form throughout the centuries until now, will increasingly be recognized and accessed by modern-day people as humanity moves into a more sustainable period of development. These classical values and ethics Berry considers as the third source of wisdom that will take humanity into the Ecozoic age.

The Scientific-Technological-Industrial Era of Western History

Berry believes that the transition from the cosmic mode of consciousness began in the 14th century when humans consciously and unconsciously began looking for ways in which they might control the forces of the phenomenal world as a response to the Earthly terror imposed by the Black Death. During this transitional period, "[s]cientific inquiry became the controlling human preoccupation, pushed by obscure forces in the unconscious depths of Western culture" (Berry, 1988, p. 127).

Berry recognizes the incredible achievements that took place as a result of the drive towards "empirical examination of the phenomenal world and its expression in quantitative terms" (p. 127). The sciences of calculus, geology, biology,

paleontology, physics, astronomy, and chemistry were providing humans with new ways of understanding the physical world, and they were leading to the invention of new technologies and the creation of new economic strategies as industry increased. In and of themselves, Berry acknowledges the genius of sixteenth and seventeenth century scientists such as Francis Bacon (1561-1626), Galileo Galilei (1564-1642), Isaac Newton (1642-1727), and other great minds, who, driven towards scientific, technological and industrial endeavors, were opening up new possibilities that were enhancing the lives of a broader scope of people in the Western world. But with this shift in consciousness towards what Berry calls the myth of paradise (Dalton, 1999) also came a change in the relationship between the human, the Earth and the divine. Berry explains:

> [T]he historical drive of Western society toward a millennium of earthly beatitude remained the same. But the means had changed. Human effort, not divine grace, was the instrument for this paradisal realization. The scientists and the inventors, the bankers and commercial magnates, were now the saints who would reign. This, then, was the drive in the technological age. It was an energy revolution not only in terms of the physical energies now available to us, but also in terms of the psychic energies. Never before had we experienced such a turbulent period, such a movement to alter the world, to bring about an earthly redeemed state, and finally, to attain such power as was formerly attributed only to the natural or to the divine (Berry, 1988, p. 40).

As the Age of Enlightenment unfolded, Berry 's assessment of the prevailing mindset of the Western world is one in which the capacities of the human rational

mind became "the modern substitute for the mystical vision of divine reality" (1988, p. 40). With this shift of emphasis came a separation between spirituality and science. Spirituality was delegated to the human rational mind, which exclusively contained a soul, and had the transcendent power to access the numinous. Science was delegated to the secular world, and was concerned with exploring the material substance of the Earth. Not only did ethics and values belong exclusively to the realm of spirituality, but those "who prided themselves on their realism" did not acknowledge the inner vitality, the mythic symbolism or the psychic energy of the other-than-human beings in the natural world" (Berry, 1988, p. 41). Consequently, in the areas of science and technology, an over emphasis on realism "led to a savage assault upon the earth that was inconceivable in prior times. The experience of sacred communion with the earth disappeared" (p. 41). Berry believes that the "objective" understanding of reality was born as a consequence of such thinking—the Earth became a mechanistic world, run by quantitative, unchangeable laws of cause and effect, determinism, and reductionism—laws that were verifiable, measureable, predictable, and demonstrated human mastery over the natural world. It was during this time that the philosophy of Rene Descartes took hold (1596-1650), and in Berry's opinion, Descartes' Cartesian orientation which privileged the human "mind" over all "matter" that existed on Earth (including plants, animals and the human body), effectively crushed the idea of a living vitality or a subjectivity in animals, plants, and other beings. He comments on the grave consequences of such an ontology:

> He did away with western consciousness of any inner vital principle … The

> consequences of this would later be felt in the larger realm of the human order… abandonment of any subjectivity in things …any esthetic reality, anything beyond quantity (Swimme & Berry, 1992, p. 230).

In addition, Berry believes that the emphasis that was placed on human rationalism and empiricism is indicative of the beginnings of a cultural pathology, centred around the "sense of absolute progress of the human mind" (1988, p. 155), which would deepen as the modern financial, industrial and commercial corporations took hold, and as the members of the other-than-human world were further exploited as a result of increased demands for consumption and production. With the exception of the Romantic period in which counter-Enlightenment thinkers such as Vico, Goethe, Fichte and Schelling emerged (Berry, 1998; Dalton, 1999) to present a unified vision of nature and human history, the modern Western culture had lost the ability to access the interconnected, subjective and cosmic energies of nature-divine-human that had provided deep meaning to people in previous ages. By the beginning of the 19th century, in Berry's estimation, "Earth itself was no longer seen as a communion of subjects. It had become a collection of objects to be adjusted to in an external manner" (Swimme & Berry, 1992, p. 199). Hathaway and Boff, whose evaluation of the separation and alienation that occurred during this period aligns with that of Berry's, describe their beliefs about the lasting effects this mindset has had on the modern-day consciousness:

> …The Earth was transformed from a living mother into dead matter, a mere storehouse of raw materials awaiting human exploitation… The world, no doubt, became…tamer…yet ironically it also became a more cold and

forbidding habitation as humanity saw itself standing alone, divorced from the greater community of life, truly homeless for the first time (p. 148).

Further Narrowing of Focus: North America—A Story of Separation

Such was the attitude of the first European settlers who settled in North America beginning in the 17th Century. As the historical narrative of Earth-human history continues, for purposes of understanding Berry's critique of the modern Western human influence, it is necessary to narrow the cosmogenetic lens in order to focus on the North American continent. Berry states, "To live here in any acceptable manner, we should know something about this continent and its distinctive features, for only in this manner can we know where we are or understand our authentic role in this context" (1999, p. 33).

European Settlement in North America

Berry presents a dismal picture of European settlers' influence on the United States and Canada. Beginning with the statement, "Every living being on this continent might have shuddered with foreboding when that first tiny sail appeared over the Atlantic horizon" (1999, p. 41), he describes the disconnection between the Europeans, the Indigenous peoples, and the other-than-human community that was established from the moment the Europeans set foot on North American soil:

> As seen by the Europeans the continent was here to serve human purposes through trade and commerce…They had nothing spiritual to learn from this continent. Their attitude toward the land as primary for *use* was the crucial issue. This attitude was not only the clash of two human groups with each other over some land possession or some political rule, it was a clash between

> one of the most anthropocentric cultures that history has ever known with one of the most naturecentric cultures ever known…In religion, culture, politics, and economics there existed with the settlers a discontinuity of the human with the natural world. The human, transcendent to the natural world, was the assumed ruler of the land…To the European settlers the continent had no sacred dimension. It had no inherent rights. It had no way of escaping economic exploitation. The other component members of the continent could not be included in an integral continental community…(1999, pp.44-45).

In Berry's opinion, over the centuries, the North American continent became an urbanized, industrialized, merchant-oriented "wonderworld" that projected the image that "Progress is our most important product" (1988, pp. 155-56). By the 20th century, the modern corporation, which Berry identifies as "the fourth destructive manifestation of patriarchy" (p. 155) was firmly established in North America. The consumptive mentality became so deeply entrenched in "the unconscious depths of the culture" (1999, p. 46), and people became so "committed…to our divinely commissioned task of commercially exploiting this continent" (p. 46), that until recently, we have not even begun to realize the devastating consequences of growth and progress on the natural world. Berry (1988, 1999) recognizes the attempts of those entranced with nature to initiate a feeling of intimacy for the Earth, authors such as Walt Whitman, Henry Thoreau, John Muir, Aldo Leopold, Loren Eiseley, Annie Dillard, and Barry Lopez, as well as countless artists and musicians; but he concedes that even these brilliant individuals have remained on the periphery of the dominant North American consumeristic

culture. He assures us, however, that their words and visions will be accessed in further generations as people begin to reconnect with the Earth.

At this point in the story, North America has become a leader in economic neocolonialism; and transnational corporations are using their power to create global financial markets, cultivate influential political relationships through political contributions, and take control over local economies through promises of investment and employment. These global corporations exploit and dehumanize the poor for inexpensive labor; exert power over mass factory farming food production; genetically modify the DNA of seed-producing crops; fill the air, earth and water with toxic chemicals; ravish the Earth's rainforests, soil, and water supplies—all for industrial growth (Berry, 1988, 1999, 2006; Bhabha, 1994; Hathaway & Boff, 2009, Kahn, 2009). As the Industrial Growth Society expands in the name of progress, so does the sense of powerlessness grow in those who are repressed and oppressed by the systems of capitalistic control. In recent years, the gap between rich and poor has widened considerably, and the scale of inequality is shocking. The "total cost of providing basic education and healthcare, adequate nutrition, and safe water and sewage for all those who do not have these essentials" (Hathaway & Boff, 2009, p. 18) is less than 2% of the wealth of the world's richest people, and yet, numbers of those who live in absolute poverty increases daily.

Collection of Objects Mentality: Signs of Psychic Decline in Modern Age

But those in North America who have lived a comfortable existence and have "benefitted" from consumeristic ventures have also been victims of this consumptive mindset. Thomas Berry, and others whose worldview aligns with his

bring to the forefront the ways in which North American people have been indoctrinated into a *Collection of Objects* mentality that encompasses every aspect of their lives. A summary of some of their critiques provides a holistic picture of their evaluation of the situation in North America today:

A *Collection of Objects* mentality falsely claims that human needs such as relationship, creativity and compassion can be satisfied through consumerism (Berry, 1988; Macy & Brown, 1988). North American people have been products of a global media industry that "legitimate[s] capitalism in the eyes of ordinary people," (Sandlin and McLaren, 2009, citing Bertelson, 1996, p. 90) and allows crucial social and environmental justice issues to take a back seat to the dominant narratives of economic production, distribution and consumption (Berry, 1988, 1999; Evans, 2002). In the past century, Western citizens have been shaped by discourses that state that the good life is directly connected to the amassment of money, property and possessions (Berry, 1988; Esteva & Prakish, 1998). They have been bombarded daily with addictive messages that tell them that their intrinsic worth is directly related to the accumulation of "stuff". Western consumers have been "systematically denied critical knowledge and control over the means of production for the goods [they are] encouraged to buy" (Kahn, 2009, p. 52). They have not been made aware of the power geometry (Massey, 1994) at play in the "hegemonic cultural logic of consumerism" (Sandlin and Mclaren, 2009, p. 4). The media has effectively fragmented and obscured information that would give average Western citizens a coherent picture of what has actually been happening in the wider Earth community (see Appendix B), and the large corporations who have

controlled the media have constructed a false sense of reality, system of values, and quality of life.

Molly Young Brown, a holistic advocate for social and environmental justice, encapsulates the disconnect the North American system has created, a system in which ordinary people do not have the knowledge to make informed consumer choices:

> The greatest destruction is…being done by ordinary people… family-loving, "moral" people who are enjoying their sport-utility vehicles…vacation cruises... burgers, and are oblivious to where those pleasures come from and what they really cost… when all the uncounted effects of their production and use are added up (Macy & Brown, 1998, p. 12).

Western education has much to account for in presenting this distorted picture of reality, and indoctrinating people into a corporate capitalistic mentality (Berry, 1988, 1999). Students in the last century have been taught to be individualistic, achievement oriented, competitive, obedient, and passive (Berry, 1988; O'Sullivan, 1999; Purpel and McLaurin, 2004). Educational systems have engaged in banking education (Freire, 1981), where the teacher as authority, has "deposited" information in students' minds. Pedagogical goals have reflected the philosophy that a good education is connected to high marks, and "success" is measured by performance on standardized tests. Schools have encouraged pursuits that will ensure a high standard of living, and they have often discouraged young people from pursuing less lucrative careers that emphasize creativity and imagination. Subjects such as mathematics and science, where students can find the

"right" answers, are privileged over subjects in the arts, where students are encouraged to explore possibilities, tap into inner resources and find their own voices. Students who are university bound are privileged over those who are not (Berry, 1988). Eurocentric perspectives of knowledge are privileged over traditional knowledge and Indigenous history (Berry, 1988; Battiste, 2000, 2013; Cajete, 1994, 2000). Learners are separated into individual desks, subjects are taught as distinct disciplines, and students are treated as autonomous individuals who are competing with each other (Berry, 1988). Very little contact is made with the natural world or the community at large (Berry, 1988; Louv, 2008). As a result, students who do not excel, who are not comfortable in the sterile school setting, or who have not conformed to the educational values espoused by their schools often graduate with a feeling of internalized powerlessness, a feeling which increases as they become adults, especially if they are not able to secure high-paying jobs. Even many of those who grow up to be very "successful" become objectified in the sense that they come to believe their most valuable human asset is the ability to make a lot of money.

Present day human beings in the North American world are living in this distorted reality in which money appears to have colonized everyday life, and it is taking its toll. From an early age, people are bombarded with a pseudo-cosmology that equates happiness with an accumulation of money, and it creates anxieties in every sphere of society. Economic hardships breed violence and despair in those who do not have enough to meet their basic needs. Both mothers and fathers are spending longer hours at work in order to earn more money, but as a result they

have less time with their families engaging in activities that bring quality to their lives (Macy & Brown, 2010).

The focus on money has led to a shallow *Collection of Objects* mentality, and yet the relational activities which give meaning to life—caring for and spending quality time with children, friends, the elderly, nature—have little to do with the accumulation of money. People have become alienated from each other and from the natural world. They fill their time in hedonistic pursuits that push the suffering of others below their conscious awareness. They repress their inner knowledge that things are not right in the world; they become politically passive; and they tune out to politicians that scapegoat each other when capitalistic ventures falter (Macy & Brown, 2010). For all of these reasons, people in Western society have not only become increasingly disconnected from the beauty, awe and mystique of nature, from close human relationships, and from their inner intuitions and imaginations; they have also become distanced from the inherent dangers of tampering with natural processes and from the painful social and ecological injustices that the capitalistic system of power has created. So much so, that they are deluded into rationalizing that there is no necessity for change, that they could not adjust to change, or that they are powerless to incite change. The results of this denial are subconscious feelings of despair, which have led to destructive behaviors and addictions in people at all economic levels. Joanna Macy, an advocate of Berry's *Great Work* (1999) and the founder of the movement called *The Great Turning,* explains: "Each act of denial, conscious or unconscious, is an abdication of our

power to respond. It relegates us to the role of victim, before we even engage and try to change the situation" (Macy & Brown, 2010, p. 37).

But, "in addition to the chronic stress, ill-health and alienation that humans feel inside the [vast industrialist machine], there is the unintended consequence of ruining …the ecological processes of life" (Swimme & Tucker, 2011, p. 108). Swimme and Tucker remind us of the urgency of the present planetary situation: "[W]hen humans first emerged… their presence was negligible…But….We live on a different planet now…cultural selection has overwhelmed natural selection… Earth['s]… very atmosphere and biosphere are being shaped by human action…"(pp. 100-101). Modern humans face a challenge that no previous era has faced.

It is time that humans face up to reality, stop exerting power over each other, and join efforts as a species to advocate for the Earth.

The Emerging-Ecological Age: Stirrings of Transition and Change

Change seems to be an impossible dream, but Thomas Berry believes that it has already been happening, especially in the world of modern-day scientists who are now able to trace the 13.7 billion year history of the universe and are providing for humans the time-developmental story of the evolution of the universe, the Earth, the human, and human consciousness. He states, "The scientific basis of the new origin story is now being accepted as the context for education everywhere on the planet. For the first time in history, the human community has a single origin story where it establishes its identity… in space and time" (1988, p. 120).

Berry also recognizes an integration of a new cultural coding, a "functional cosmology" (p. 121) which is manifesting itself in the thousands of social

movements, ecological endeavors, and educational programs that are gathering new members daily across the planet. He believes a transitional shift in consciousness is evidenced by the growing numbers of people all over the Earth who are engaging in Feminist, Indigenist and other activist movements towards social and ecological justice. He believes that modern day science, which he names as the fourth source of wisdom for the future of humanity, is opening up new insights into the time-developmental nature of the unfolding universe; the relational activity of the quantum world, and the inseparable interconnectedness of every being on the planet. And he believes that the resurgence of contemplative practice in North American society indicates that humans are beginning to develop a more holistic, multi-dimensional way of understanding reality.

Berry believes, however, that if humans are to understand their inseparable connection to the energies and rhythms of the universe as they prepare to move into the next age of human history, they must first understand how and where they belong in the unfolding future of their home planet, their home continent, and the bio-region in which they live. This understanding, he proposes, can only begin by learning the entire cosmogenetic story of the "inseparable bonding [of the individual] with every other being in the universe" (1988, p. 120). He states:

> It is of utmost importance that succeeding generations become aware of the larger story outlined here and the numinous, sacred values that have been present in an expanding sequence over this entire time of the world's existence. Within this context all our human affairs—all professions, occupations, and activities—have their meaning precisely insofar as they

enhance this emerging world of subjective intercommunion within the total range of reality (p. 136).

Berry's Cosmogenetic Answer: A Summary

From the perspective of the Cosmogenetic Lens, then, what is the answer to the question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects?*

At this very time in history, Thomas Berry believes that we are moving not only into the *Ecologica*l age of human history, but also into the *Ecozoic* era of Earth history. Berry reminds us that humans of the present day are actually beginning a *New Story of a New Human Age* and a *New Story of a New Earthly Era*. At this critical time, Berry believes that humans must learn how to access all of the resources that have been available to humans since they emerged on the planet 200,000 years ago—including primordial wisdom, classical values, and evolutionary knowledge. Doing this requires undergoing a radical shift in consciousness. The first step in undertaking such a shift requires learning the cosmogenetic history of Earth-human relationships. Berry warns us that never before have humans had to prepare for such transformations as are needed right now. For the first time in history, the human story has impacted the future unfolding of the Earth story to such an extent that the human species is responsible for the closing down of a historical era that has a 65 million year history. That is why Thomas Berry stresses that humans must come to understand that the story of the Universe, the Earth, the human, and the future influence of human consciousness can never be separated.

Berry advises that all people, from the time they are children, learn the story of the unfolding Universe—the physical laws, the connections to the stars, the genetic lineage of all life forms—and—the processes which enhance the sustenance of life and those that interfere with it. He suggests that learning the evolutionary story will assist individuals to recognize a cosmic sense of time; to recognize the intricate connections between the individual and the whole of the Earth community; to recognize the effects of a shift in human consciousness; and to recognize the fragility of the planet—the fine-tuning necessary for life to emerge, the precise conditions that enable Earth to remain stable, and the conditions by which extinctions and natural disasters occur.

Berry also advises that learning the story of human history will help us to reconnect to the mythic sense of consciousness and the psychic and cosmic forces that have harnessed the energies of humans since the beginning of human history. Learning about the primordial wisdom and nature mysticism of Indigenous peoples; the intuitive, creative, and nurturing feminist wisdom that has balanced patriarchal control throughout history; the deep values and ultimate reverence for the divine that has sustained the wisdom of the classical traditions in both East and West, and the wisdom of the most recent realm of modern day science, that of quantum physics—tapping into all of these areas, will assist us in learning how to once again become integral members of the Earth community.

Finally, Berry believes that learning the story will lead to the realization that the Western mechanistic reductionism of modern times has been culturally constructed, and with the understanding of its historical formation, it is his hope

that humans will begin to deconstruct it in order to dissolve its power to cloud their perceptions of reality; to come to the realization that the Earth is a *Communion of Subjects*, and to join in the efforts to propel a collective shift of consciousness.

Personal Connections: Cosmogenetic Perceptions of Inseparability

Having personally responded to Berry's challenge to learn the story of the Universe, I have found that the shift that has happened in my own perspective has been one of expanding a myopic view of the Earth, of life and of human consciousness. Developing the Cosmogenetic lens has provided me with a comprehensive picture of the whole story of the Universe and of the Earth from the beginning until now. This holistic picture has reconfigured for me the conception of time, and it has put into perspective the relatively brief time period that humans have inhabited the Earth. It has also given me an overview of how and why the disconnection of Western humans has taken place and how and why the pursuit of power and money contributes to fragmentation and a *Collection of Objects* mentality. I now think more holistically about the meaning and purpose of one's time on Earth, and about how each of us has the responsibility to ensure that things are better, not worse for future generations. This knowledge has given me a more solid foundation to speak on behalf of those who do not have a voice of their own. It has also caused me to examine critically my own attitudes towards such things as consumerism, money, privilege, my children's career choices, time spent with grandchildren, travel, service, education, religion and leisure. As a result, I have shifted some of my priorities and become less influenced by Western discourses that dictate a *Collection of Objects* mentality and a consumer-oriented way of living in the world. In addition,

Berry's portrayal of the history and wisdom of Indigenous peoples has given me a deeper understanding of the hardships imposed by Western colonialism on those of Aboriginal ancestry and a greater appreciation of Indigenous worldviews and ways of knowing. It has strengthened for me the conviction that our schools must not only provide education about the complete history of our continent, but they must also advocate for pedagogy which fosters Aboriginal ways of knowing and learning, not only for Aboriginal students, but for all students in our schools.

Learning about the *Goldilocks* conditions, in which cosmogenetic influences continue to be "just right" to support and enhance life; and about the planetary extinctions, in which all but a few species have disappeared throughout separate ages of the Earth's development, has brought to home for me the concept of the fragility of life on this planet. This learning has made me conscious of the intricate processes that must maintain their balance in order to support life on Earth, and it has brought an understanding of global warming and climate change closer to home. It has also helped me to become more attuned to the wonders of the Earth—the diversity of life, the ever-changing seasons, the complexity of the oceans—all of which were established long before humans inhabited the Earth, and all of which will continue to evolve whether or not humans continue to exist in the future. This appreciation has incited a shift in the way I view the natural world, and it is encouraging me to become more aware of how my everyday actions might enhance or harm conditions for others now and in the future. Since developing the *Cosmogenetic* Lens, I am increasingly amazed at the overall "organization" of creation, especially in terms of how plants, insects and animals exist as subjects

capable of adapting and surviving in changeable conditions, and at the same time exist in symbiotic relationship to each other. In my opinion, humans could learn much about cooperating with each other from the members of other species. I now more deeply respect the subjectivity of the Earth's other-than-human inhabitants, and I am more aware of the ways in which ecosystems maintain a balance in differentiated populations. But developing this awareness has not always been a positive experience. I have also witnessed great suffering, and I have had to come to terms with the reality that Nature's ways can be very cruel to those who are not able to survive.

Knowing the evolutionary story of the Universe affirms for me that major planetary change can and does happen when it is necessary. This knowledge both gives me hope in the possibilities for a more sustainable and just future, and causes me to worry about what will happen if humans do not change their ways. It also convinces me that our educational system must refocus its goals to teach young people how their lives are connected to the creative process of the natural world. I believe "learning for life" must become a matter of learning to adapt, to create, to self-organize, to relate in mutually-enhancing ways with others who share our planet. Our young people must be given more opportunities to develop the personal subjective qualities of imagination, intuition, and contemplation; and the communal subjective qualities of interconnection, interdependence, and compassion.

Developing the *Cosmogenetic* lens has emphasized for me the speed of evolutionary transformations that are happening on the Earth at the present time. When one looks at the whole picture of the evolution of the Earth, one begins

realizing the impact of the information and global communication explosion that is currently happening. What used to take thousands, hundreds and dozens of years to process now happens almost instantaneously. Even in my lifetime, the changes are almost unfathomable. Now, I often remind myself that for 199,900 years of human history, people lived without airplanes, cars, shopping centres, televisions, computers, cell phones, refrigerators, indoor plumbing, and electrical appliances, and it is only in the course of the last 100 years, that these objects have become so integral to human existence in North America. It boggles my mind to think about what is the next development to emerge, and about what is being lost in the process. This reality also has important implications for education in the future.

And finally, viewing evolutionary history from the lens of cosmic time in which each creative event is inextricably connected to the other has prepared me for the study of quantum and systems theory, the areas of contemporary science that are currently providing the foundations for the expansion of human consciousness. Working in complementary relationship with Berry's *Cosmogenetic* lens, the *Holographic* lens of the next chapter provides a layered perspective of Berry's mandate for transitioning into the next era of evolutionary emergence, an area which sets the Western mechanistic mindset of modernity on its heels.

CHAPTER FIVE
THE HOLOGRAPHIC LENS

"Awareness of an all-pervading mysterious energy…and its multiple modes of expression is…the primary concern of modern physics… in describing the most fundamental reality of the universe…The universe can [now] be seen as a single, if multiform, energy event…" (Berry, 1988, p. 24).

The following is a theoretical exploration of the relatively recent emergence of the scientific field of quantum and systems theory, to which Thomas Berry often refers as the New Science. References to the work of Brian Swimme, Mary Evelyn Tucker, Mary Conrow Coehlo, Diarmund O'Murchu, Joanna Macy, David Bohm, and other scholars who share Berry's process-relational worldview provide much of the information towards the explanations and understandings of this complicated field of interconnected energies. The story of the Universe as viewed through the holographic lens is one of a multi-dimensional, interconnected, and largely invisible reality that celebrates diversity, complementarity, synchronicity, and non-local communications.

Holographic Foundations: A Story of the *Whole* and its Interdependent Parts

During his lifetime, Thomas Berry recognized a dynamic shift of collective consciousness in rapidly growing social movements across the planet, and he was convinced that parallel transformative movements in the contemporary scientific world would continue to gain momentum as well. Berry recognized the work of 20th and 21st Century scientists in discovering and continuing to explore a new cosmology arising from what they now know can be an unpredictable, paradoxical, and chaotic quantum universe. Berry believed, as did Teilhard de Chardin, in the

mystic dimension of scientific discovery, so much so that he named science as another of four primary sources of wisdom that will serve to shift human consciousness in the future as scientists continue to realize that the mechanistic-reductionistic mindset is no longer sufficient to explain the wholeness of reality.

Key to Berry's *Communion of Subjects* comprehension of quantum reality is the "sense of a single universe integral with itself, a universe totally in communion with itself by gravitational attraction, by the influence of its parts on each other and on the whole" (Berry, 2006, p. 60). Berry's understanding of "wholeness" in relation to the interconnected nature of a quantum universe was mirrored by scientific use of the prefix *holo*, meaning whole, to describe quantum relationships. For example, the term *Holonomy,* coined by philosopher-scientist Arthur Koestler, describes a nesting process of concentric circles by which the human not only integrates oneself within one's culture, but one's culture integrates itself within the Earth (Coehlo, 2002, p. 171). Koestler's term *holon,* which means *each whole thing in nature*, is a powerful metaphor for imagining a new paradigm that replaces the metaphor of the *machine* in the Newtonian worldview, and parallels the integral *Communion of Subjects* vision of Thomas Berry. Each holon, which is in itself a unique whole (*differentiation*) and is also a part of a larger whole, has an interior self-assertive tendency to preserve its individual autonomy (*subjectivity*) and an integrative tendency to function as part of an interdependent whole (*communion*). The metaphor of the holon represents a totally new way of perceiving and understanding reality (O'Murchu, 1997, p. 61).

The prefix *holo* was also used by David Bohm (1917-1992), a renowned

American physicist, who proposed a comparison of quantum reality to an image of a *hologram*. A *hologram* is a three-dimensional photograph in which beams of light become integrated into a whole to reflect a true picture on a film in such a way that each part of the film contains an image of the whole. "The magic of the hologram lies in the special type of transformation involved…the whole object is projected onto every point of the film…Cut the film in half, and a laser light will still render the whole image visible" (Zajonc, 2009, p. 175). The hologram provides a concrete image of the indivisibility of mind, matter and spirit in both the subatomic and the visible world, and it mirrors Berry's description of the three-dimensional holistic space-time continuum (Berry,1988, p. 133).

From the figurative perspective of the three-dimensional *Holographic Lens,* and adopting the *holon* as a metaphor of the interdependent relationship between whole and part in Berry's *Communion of Subjects* orientation, the following is an introductory exploration of how quantum theory—as it appears in the disciplines of cybernetics, systems theory, the sciences of complexity and dynamic systems; and the studies of dissipative structures, autopoietic systems and non-linear thermodynamics—might be woven into the scientific foundations underlying the following question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects?*

A Shift from Newtonian to Quantum: The Truth and Lies of Albert Einstein

The beginning of the crumbling of the Newtonian worldview is largely credited to Albert Einstein. In 1914, Einstein stumbled upon his Special Theory of

Relativity, which proposed that time and space are not two separate entities, but are integral parts of a space-time continuum. In 1916, he extended his special theory to create the General Theory of Relativity, which claimed that all objects move and interact in relation to the curved gravitational nature of the space-time continuum. With the development of these two theories, Einstein made a discovery that completely changed his Newtonian understanding of reality. The revelations of his new mathematical formulas, which indicated that the world is in a dynamic state of change, challenged the mechanistic worldview of scientists of the modern period, including Newton's and his own. For his entire career as a scientist, Einstein had assumed that the world was a static and finite place, but at the moment he discovered that the world was in a continuous state of expansion and transformation, he panicked. Worried that his contemporaries would question his sanity for undermining the Newtonian worldview that had guided scientific research for three centuries, Einstein made a decision that he would regret for the rest of his life. Because he was hesitant to disclose his new formulas to the scientific world, and because he had difficulty believing them himself, Einstein rejected the truth he had uncovered, and altered his equations by adding a "cosmological constant" to his General Theory of Relativity formula. Only in the late 1920's, when Edwin Hubble invited Einstein to view the galaxies through his telescope, did Einstein acknowledge that his "original insight concerning a dynamic expanding universe was in fact the truth" (Swimme, 1996, p. 73). He later deemed his deception the worst blunder of his career.

When someone asked Einstein to explain his Theory of Relativity in simple terms, he responded with an analogy that compared two possible situations in which a young man might find himself: "When a man sits with a pretty girl for an hour, it seems like a minute. But let him sit on a hot stove for a minute and it's longer than an hour. That's relativity" (Winter, 2009, p. 123, citing Simpson, 1988). The point of the analogy is that everything is relative because it is dependent on the frame of reference of the participant. Einstein's theories proved that energy, mass, time, and space can never be thought of isolated from one another as absolutes, and that things can be understood only in relationship to each other. Energy and mass are actually two complementary aspects of the same phenomenon, and time and space are actually two unified aspects of the same holistic continuum.

Einstein's relativity theories opened the doors for a paradigm shift (Kuhn, 1970) in which the dominant mechanistic modes of understanding reality gave way to the development of quantum theory, a new and more profound way of explaining the nature of the universe. Thomas Berry, along with philosopher and scientist contemporaries such as Alfred North Whitehead, David Bohm, F. David Peat, Ewert Cousins, Louis Depre, and Brian Swimme were instrumental in laying the philosophical and scientific foundations for a process-relational way of perceiving new and mysterious dimensions of reality (Coehlo, 2002). Facilitating the development of a shift from a mechanistic to an integrated consciousness required a completely different way of knowing and perceiving the world. To imagine such a shift, one might picture the top of an iceberg protruding from the surface of the ocean—if one considered the part that can be seen and quantified as representative

of the Newtonian worldview; the mysterious, unseen whole from which the part originates might represent the quantum worldview. Quantum theory transcends external objectivity; acknowledges internal energy flow as the essence of reality; and values uncertainty, probability, diversity, mystery and vitality (O'Murchu, 1997). It is an interrelated discipline that Nobel-prize winning physicist Richard Reynman claims, nobody really understands (Roszak, 2001).

Perceiving the whole of the material-psychic-trans-spatial reality through Berry's *Holographic Lens* requires a foundational understanding of several aspects of quantum physics. Each of the following six foundations of understanding are wholes unto themselves, but they are also parts of a larger understanding, which is made accessible when the parts are integrated into the greater whole.

First Foundational Understanding of Quantum Theory: Subatomic Reality

The realm of quantum physics is the world of the microcosm, a subatomic reality that is so tiny it is almost inconceivable to the human mind. The study of quantum mechanics began in 1900 when physicist Max Planck (1858-1947) discovered that energy is emitted not in isolated segments, but in tiny bundles called *quanta*. When Einstein applied Planck's discovery to quanta of light (photons), he discovered that light consisted of energy particles with wavelike properties and without electric charge (Swimme & Berry, 1992). These two discoveries led to the study of atoms, electrons, and other subatomic particles, and they set the stage for quantum theory to take hold.

In Newtonian physics, atoms were considered the smallest particles of matter, and they were believed to be indivisible. Newton believed that atomic

particles were the building blocks of unchanging matter, and if scientists could gain knowledge of the forces acting on these particles, they would eventually be able to predict the innermost workings of nature, thereby gaining mechanistic control over them (Coehlo, 2002). But before the beginning of the twentieth century, scientists discovered that atoms were in fact not the smallest particles; nor were they finite unchanging substances that can be described in predictable or mechanistic patterns of behavior. In 1897, J. J. Thomson discovered much smaller negatively charged particles called electrons orbiting around inside atoms; by 1919, Ernest Rutherford discovered much larger positively charged proton particles enclosed inside the nuclei of the atoms; and by 1936, James Chadwick discovered neutrons, also in the nuclei, and with a slightly greater mass than the protons. All of these particles and the nucleus itself were infinitesimal in comparison to the size of the atom. Brian Swimme (1984) explains that if one were to imagine that the atom were as large as a baseball field, the nucleus would be smaller that the ball on the field, and the electrons would be the size of the mosquitoes flying overhead. And all of the rest of the space would be empty—99.999999% empty, to be exact (Hathaway & Boff, 2009). The image of vast emptiness in even the smallest particles of matter is important one for further understanding of quantum reality for it is within the seemingly empty spaces that the most potential exists.

Within the atomic world is a microscopic system that is as complex as any macroscopic reality, but it is very difficult for the average person whose perceptions have been shaped by classical physics to even imagine how it operates. In undertaking a shift in consciousness away from a Newtonian worldview, one must

begin by looking at the world through a new lens, one in which the material "stuff" of atoms is no longer as important as the subtle relational patterns that develop between the atoms themselves. Physicist Fritjof Capra provides an analogy of the organizational process: "There is motion there but there are no actors; there are no dancers, there is only the dance" (Hathaway & Boff, 2009, p. 172, citing Capra, 1982, p. 92).

Second Foundation of Quantum Theory: Wave-Particle Duality

Subatomic particles such as atoms, electrons and protons are found in wave packets, wherein, instantaneously, they can become either waves (momentum) or particles (position). Before the wave packets are observed, they exist as patterns of uncertainty or probability; they are potential entities, which are not yet formed in reality. When a particle is observed as a form (position), the act of observation creates several possibilities, but only one materializes, and the wave function collapses to that possibility. If one sees a particle's position, it is not possible to determine its momentum (wave form). Conversely, if one observes the wave form, it is not possible to observe its particle form (position). Thus, the Newtonian idea that separates matter from mind is replaced by the concept of mind and matter working together to give rise to each other; they are actually complementary aspects of the same reality.

The Heisenberg Uncertainty Principle, developed by German physicist Werner Heisenberg (1901-1976) proved that is impossible to know both the position and the momentum of a subatomic particle at the same time. In addition, it established that the observer actually affects the momentum of the particle.

Observation requires energy, and if one uses even a single quantum of light (photon energy) to see the position of the particle, it will affect what one sees. Conversely, if one determines the position of the particle, one will affect its momentum. Until a particle is observed, it exists as a probability wave, but the very act of observation forces it to manifest itself in an unpredictable position. There is no way to know whether atoms will show up as waves or particles; seemingly identical situations can have different outcomes, and physically identical atoms can behave quite differently. Newtonian notions such as cause and effect, predictability, reductionism, determinism or linear rationality cannot explain the random world of quantum reality.

In the subatomic world, there is little distinction between the observer (*subject* in classical physics) and the observed (*object* in classical physics) because they are complementary parts of the same system. The very act of observing incites the manifestation of either a wave or a particle. This implies a radically different epistemology than that proposed by Newtonian physics. Austrian physicist, Erwin Schrodinger (1887-1961) describes this way of knowing very simply: "The world is given to me only once, not one existing and one perceived. Subject and object are only one" (Hathaway & Boff, 2009, p. 175, citing Schrodinger in Wilber, 1985, p. 81).

Third Quantum Foundation: Inseparability, Relationality, Entanglement

In the quantum worldview, nothing makes sense in isolation. When Newtonian scientists attempted to reduce the quark into a separate "building block" of material reality, they found it was impossible for even a fraction of a second; it was completely inseparable. In addition, once two quarks (or any other subatomic

particles) interact, the connection between them is instantaneous, and they remain interrelated at some level for all time. Further, it is possible for subatomic particles to make non-local connections that are called quantum entanglement. In quantum entanglement, there is no cause and effect, and instantaneous atomic events are not brought on by local causes. If two particles interact with each other in quantum entanglement, they are present to each other for all time, even though there is no communication between them. A change introduced to one causes an adjustment in the other, even if it is in another part of the world. Therefore if one particle is manifested by observation, it will simultaneously influence the particle correlated with it, no matter how far apart they are. This nonlocal causality, otherwise known as Bell's Theorem, developed in 1964 by John Bell, (1928-1990) establishes that "it is not viable to think of a particle or an event as being completely determined by its particular locale. Events taking place elsewhere in the universe are directly and instantaneously related to the physical parameter of the situation" (Swimme & Berry, 1992, p. 28). The characteristics of inseparability, relationality and entanglement indicate that subatomic particles can never act independently. And not only do connections between particles transcend space, they transcend time.

The idea of non-locality was impossible for even Einstein to accept. He could not understand instantaneous non-local connections because they contradicted his theory of relativity, which states no communications can be faster than the speed of light. But in 1982, and in 1997, it was proven that "when two identical photons [are] emitted by a calcium atom in opposite directions, and certain influences [are]

brought to bear on one of the photons, then the second is also affected, although the latter may be on the other side of the moon" (O'Murchu, 1997, p. 62).

The underlying essence of this quantum reality is that it can never be understood by studying the individual, localized parts; reality can only be understood by recognizing their interconnectedness. Time and space go together in an unbroken web of possibilities. Another way of expressing this might be to say that subatomic realities can only exist as a *Communion of Subjects*, and it is not possible for them to be broken down into a *Collection of Objects*.

Fourth Quantum Foundation: Solitons

A *soliton* is a distinct, visible, localized non-linear wave that appears to be an independent unit, but is actually a quanta of energy that arises out of the ground that sustains it. The first recorded observation of a soliton in action happened in 1834, and it provided for scientists a concrete demonstration of how a part can emerge as an expression of a whole. It happened when engineer shipbuilder, John Scott Russell, on horseback, decided to follow a solitary wave as it moved away from a boat and rolled along a channel of water. He watched as the wave was born from the larger body of water, rose up, shaped itself into a pattern that sustained itself for one or two miles, and then died back down into the original body of water. He described the pattern as a soliton, and his findings were later recognized in scientific studies. When scientists applied the concept of the soliton to wave/particle patterns of the subatomic world, they found that elementary wave/particles are much like solitons that arise out of an unobservable non-linear subquantum field (Coehlo, 2002, referencing Peat, 1987). Scientists discovered

solitons in the movement of electrical impulses along nerves and in the operations of electrical circuits (Coehlo, 2002).

The image of Russell's visible soliton—that of differentiated waves arising, gaining momentum, forming patterns, and returning to body of water that is their source—assists one in understanding how invisible waves and particles operate in the subatomic world. It also provides a means to understand the inseparability of wholes and parts to other forms, both invisible and visible.

Fifth Quantum Foundation: Implicate/Explicate Order

Quantum physics tells us that subatomic wave packets continually emerge and fall back into a quantum vacuum. Particles such as electrons, positrons, protons, and antiprotons spontaneously erupt in pairs out of this vacuum, interact, annihilate each other, and disappear into the vacuum, until they flare forth and vanish again—"trillions of times…each moment" (Swimme, 1996, p. 93). Little is known about this mysterious creative and destructive power, other than matter and energy continually emerge from and fall back into a quantum vacuum, an emergence that is accepted as a condition of every place at every moment of the universe—past, present and future (Coehlo, 2002; Swimme, 1996)

Integral to the understanding of quantum reality is the comprehension that this non-visible vacuum, the seemingly empty space that cannot be measured by empirical means, is full of generative possibilities. Depending on who is describing it, this potential is also known as a generative matrix, an internal formative order, (Peat, 2002), a generative cosmos, (Coehlo, 2002) an all-nourishing abyss, (Swimme, 1996) a sea of energy, (Berry, 1999) a non-visible, active dimension, (Coehlo, 2002,

referencing Panikkar, 1973) a communal reality, (Whitehead, 1926) a form generating power, unseen shaping activity, inner ordering, nonvisible and nonmaterial realm, (Swimme & Berry, 1992) and a pregnant void (Hathaway & Boff, 2009). But the theory that most fully explains this vacuum is that of physicist, David Bohm (1980), who suggests that our primary reality is an unbroken wholeness or *holomovement,* a "universal flowing movement that carries the patterns and the order out of which all forms of the material universe emerge" (Coehlo, 2002, p. 50, citing Bohm).

Bohm's interest is in the mysterious ordering patterns of the cosmos, and he believes the fundamental ordering of the holomovement works from the inside, where every part is internally connected. "…[W]hatever part, element or aspect, we may abstract in thought, this still enfolds the whole and is therefore intrinsically related to the totality from which it has been abstracted" (Coehlo, 2002, pp. 50-51, citing Bohm, 1983, p. 172). The world, as a holomovement then, is ordered by what Bohm calls implicate and explicate order.

The word implicate means "to fold inward," and the implicate order intrinsically enfolds information in each region of space and time, as the Universe continually expands (described in Swimme's example of the raisin bread). It is the unifying ground from which our perceived reality becomes manifest. It is not "an event in time or a position in space, but rather the very matrix out of which the conditions arise that enable the temporal events to occur in space" (Swimme & Berry, 1992, p. 17). It is the "subtle and universal reservoir of all life, the wellspring of all possibility, and the source of all meaning" (O'Murchu, 1997, pp. 62-63). The

implicate order is very real, but it is not accessible to human senses; it is non-local in nature; and it is autonomously active. It is a vast, open volume of energy that is seething with possibilities, and it generates a visible realm called the explicate order, which appears in the shape of external forms in which living creatures perceive, interact with, and experience the processes of life.

Bohm's explicate order is the world of our normal perceptions, and it is actually only a small portion of reality (as in the example of the visible part of the iceberg). The forms that we see are manifest in stable structures, including atoms, cells, living creatures, mountains, and all things that we can perceive through our senses. Forms are developed over evolutionary time in creative processes of *becoming*. As particle/waves appear, they create energy fields. Within these fields, some atoms seem to act relatively independently, but in general, wave packets encounter and interact with other particle/waves, and eventually become part of complex structures that take on distinct forms (for example, trees). These explicate forms "are simply a temporary [this could mean millions of years] unfolding of the implicate order which underlies and sustains all" (Hathaway & Boff, 2009, p. 188). What this means is that the external manifestation of things and living beings that we experience in our daily lives is only a small part of their actual existence; all of these things and living beings also have an inner dimension which is "directly open to and part of " (Coehlo, 2002, p. 154) the hidden, nonvisible, active depths of reality. There is no thing that exists outside this unseen shaping activity of the implicate order; there is no matter without form (Swimme, 1984).

Bohm's conception of an implicate order "implies that form is not only the consequence of the known mechanical laws of physics and chemistry, but that there is an inner ordering and creative capacity in the universe" (Coehlo, 2002, p. 165). A grasp of the dynamics of this implicate form-generating capacity of the Universe is central to a comprehension of Berry's belief that "every articulated entity of the phenomenal world" (1999, p. 60) has a material-psychic-spiritual reality. It is also foundational to Berry's *Communion of Subjects* orientation, a worldview which is based on his belief that the fundamental unity of reality (*communion*) is central to the diversity (*differentiation*) and to the interiority (*subjectivity*) of all creation.

Brian Swimme believes that when humans open themselves up to this physical-psychic-transpatial reality, and learn how to read the Universe, they will begin to regard the natural world not as a collection of dead objects, but as a "seamless whole community made up of cosmos-creating subjects" (1996, p. 103). He gives a concrete example of how one might begin, just by looking at the moon and imaging the complex process that has led to the creation of moonlight: the photons of the sun interacting with the particles of the moon, the particles of the moon being annihilated and absorbed into the quantum vacuum, the quantum vacuum creating a whole new set of particles that arise in the form of photons, and the particles in the retina of the observer interacting with the photons of the moon--so that in that one instantaneous act of observation, one is able to see the radiance of the moonlight.

Swimme believes if individuals begin consciously looking at the moon, not as a dead object, but as a creative source of light in the Universe, they might develop a

new appreciation for the creativity of the Universe. He states, "The challenge [in undergoing such a shift in consciousness] is [to] identify our deepest personal reality with the powers of the universe" (p. 105). This is difficult for those who are products of a mechanistic culture that perceives reality in separate parts; such a worldview tends to suggest that constructed narrative alone is sufficient to form human consciousness and provide a personal reality (Coehlo, 2002).

Sixth Quantum Foundation: Consciousness

Until a particle is observed, it is still a wave. But because every particle that is observable arises from an implicate order, the observer is only observing a partial reality. At the same time, the observer, as an explicate form that also has arisen from the implicate order, is part of a much greater whole. Therefore, any explicate form of reality that is able to perceive any other explicate form of reality through its senses, possesses a type of consciousness that shapes its reality. For example, a grasshopper, a cow and a human are all capable of perceiving a blade of grass; however, they will perceive it quite differently, depending on their perspective. The reality of the experience is unique to the being perceiving it; the grasshopper might view the blade of grass as protective shelter, the cow might see it as food, and the human might regard it as something to be watered and mowed.

But at the same time, since energy and matter both arise from implicate order, and both are different aspects of one unbroken holomovement, observer and observed cannot be separated—one influences the other, and vice versa. This is a radical shift away from the mind over matter consciousness of the Newtonian-Cartesian worldview. Not only does this worldview recognize an interior source of

energy in all matter, it recognizes a reciprocal consciousness in explicate forms, and it "dramatically confronts the widespread assumption that [human] consciousness markedly separates us from other living beings" (Coehlo, 2002, p. 59).

In the case of humans, our human consciousness, which draws on a gamut of thoughts, emotions, experiences, relationships and intellectual processes, creates both our external and our internal realities, but in a sense, our realities also create our human consciousness. Sensory experiences, insights, images and intuitions shape us, and we in turn shape them. Berry (1999) explains:

> …we enter profoundly into the most hidden realms of phenomenal existence itself while at the same time these hidden realms enter into our own minds. It is a reciprocal relationship. We are touched by what we touch. We are shaped by what we shape. We are enhanced by what we enhance (p. 81).

The implicate order can be a source of insight, imagination, and vision for humans. If people begin consciously perceiving the material-psychic-trans-spatial world in a more holistic way, they have the potential to recognize that their intentional thoughts, motives, and actions can influence reality: "When enough individuals are carriers of the 'consciousness of wholeness' the world itself will become whole" (Coehlo, 2002, p. 369, citing Edinger, 1984, p. 16).

The Six Foundations Reflected in the Figurative Holographic Lens

A hologram is made when a beam of light is split in two—one half of the light falls directly on a film plate and the other illuminates the object to be photographed. As the second light hits the object, it scatters away from the object and also falls on the film plate. When this happens, the direct light and the scattered light comingle,

and the interference between the two kinds of light is captured on film. When the film is developed, it does not display an image of the object; rather it looks like a meaningless swirl of light and dark regions. But, when another laser beam passes through the developed film, a reconstructed three-dimensional image of the original object hangs in space. Not until all three interrelated dimensions become integrated into a whole does the object reflect a true reality, and then mysteriously, each part of the film contains an image of the whole (see figure below).

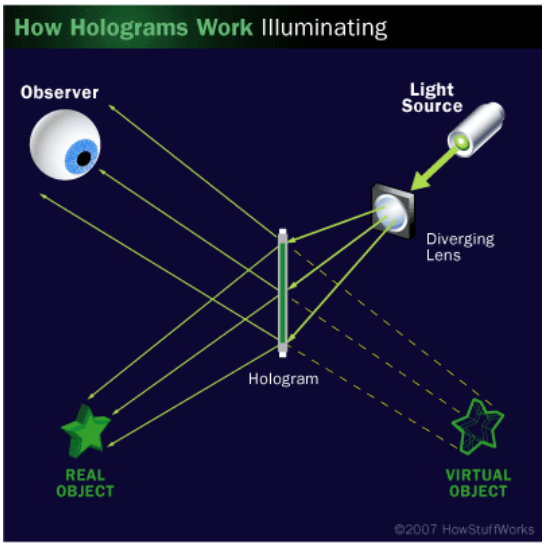

Figure 5: Hologram (http://static.ddmcdn.com)

When the hologram is considered as a symbol of quantum reality, the two halves of the beam of light represent energy and matter, and when they interfere with each other, the murky image symbolizes the quantum vacuum or implicate order from which the perceptions of the observer will become manifest. When the third laser, representing the mind of the observer, passes through the murky image, the explicate form "unfolds", and the observer is able to see a clear image of the object that has been created.

The implications of the figurative holographic lens point to the fact that we live in a three-dimensional universe, and we cannot truly experience it without a simultaneous, non-linear integration of energy (quantum trans-spatial world), matter (objective outside world), and consciousness (subjective inner world). Hawaiian philosopher and Indigenous educator, Manu Meyer (2013) calls this integration the intersection of body (outer), mind (inner), and spirit (trans-spatial). Quantum theory establishes that the three dimensions are an inseparable, relational, entangled whole; they cannot be separated, thought of as a linear sequence, or untangled into separate entities. Taking this a step further, and restricting it to human experience (because it is impossible to know how other living beings experience the world), the symbol of the holographic lens brings together deeper implications about our three-dimensional world. The objective dimension of the world is the dimension that Newtonian science accepts; it is the empirical dimension humans experience through our senses, the things that we can see, feel, touch, hear, taste, measure, weigh, predict, determine and control. The subjective dimension of the world is the dimension that Thomas Berry (1988) calls *self-reflexive consciousness*, Pierre Teilhard de Chardin (1959) calls *hominization*, educator Paulo Friere (1981) calls *conscientization*, and philosopher and scientist Alfred North Whitehead (1926) calls *prehension*; it is the internal dimension of conscious, subconscious and unconscious thoughts and energies that come together and are articulated to make meaning of experiences. The quantum, trans-spatial dimension of the world is a dimension that has often been dismissed by science because it has New Age or religious connotations, but it is a recognized facet of

scientific reality apart from the ideas others have attached to it. It is the dimension of awe, and unseen mystery and wonder—the unexplainable, unmeasurable, uncontrollable, unpredictable, paradoxical, and chaotic side of existence. It is the sphere of attraction, love, empathy, compassion, suffering—the feeling one gets when seeing a baby being born, or watching a sunset, or agonizing with a child who is in pain. It contains the elements of dreams and visions and creative moments that come together in synchronicity in the shape of a poem or a song or a dance or a painting. It is as Meyer states, the "trans-spatial, contemplative, intuitive, loving, mystic, still, and the joyful dimension…the ON switch of our lives…[the dimension] that makes sense of the other two" (2013, p. 97). And it is the facet of the inseparable three-dimensional quantum reality that our Newtonian-Cartesian trained mindsets have the most trouble acknowledging.

Other Holographic Feature: Parts Contain Wholes

The second foundational feature of the figurative holograph lens that challenges the Newtonian-Cartesian mindset is the fact that each fragment of the holographic film contains an image of the whole object being photographed. The fragments of the holographic film are representative of the microcosmic parts of the macroscopic whole. This implies that nothing can be thought of in isolation of anything else, and it has important implications for the holistic perception of reality on a larger scale. Not only does the concept work against the mechanistic ideas of reductionism and cause and effect, it provides an important distinction between the processes of mechanical systems and living systems. According to the second law of thermodynamics, in mechanical systems, entropy will always increase, and systems

will always move toward a state of disorder as they dissipate energy. But real-world systems cannot be treated as isolated, linear substances. Living systems operate through processes rather than mechanisms, and relationships rather than separate entities, and fully functioning, independent, dynamically organized, and finely tuned living systems are intricately connected to larger systems, or greater "wholes". Scientists have found that living systems, such as atoms, cells, plants, animals and humans do not obey the second law of thermodynamics; in fact, as entropy and thermodynamic disequilibrium increases, open living systems begin to undergo creative processes of regeneration in cooperation with their environment.

The study of the organic whole-part-whole nature of organic systems as it applies to the science of the evolutionary unfolding of the universe has reshaped the mechanistic understanding of natural organisms, and it has provided important applications for the exploration of real-life systems throughout the observable world. Austrian biologist Ludwig von Bertalanffy, known as the father of living systems theory, called it a new "way of seeing," and English anthropologist, Gregory Bateson, who approached systems theory from a humanistic point of view, called it "the biggest bite out of the Tree of Knowledge in two thousand years" (Macy & Brown, 2010, p. 41).

The Holographic Lens in the Observable World: Holons and Systems Theory

Systems theory has many of the same characteristics as quantum theory—characteristics such as possibility, creativity, unpredictability, and relationality—and as with quantum theory, it can serve to deepen scientific understanding of the properties of complex forms. Joanna Macy, (Macy and Brown, 2010) a systems

theorist, explains four principles by which open systems, including suborganic, biological, ecological, mental and social systems consistently organize themselves:

1) Each system—an atom, a cell, a plant, an animal, a human, a star, a galaxy—is a whole. A system's distinctive nature arises from the relational interactions between its parts. The synergistic cooperation between its components generates self-organization and creates new possibilities. It is not possible to predict the outcome of the relationship that will emerge within a system simply by studying the character of its separate parts. For instance, when hydrogen and oxygen, which are both gases, form a two to one relationship with each other, they become water, which is a liquid. Initially, such a creative interaction would not have been predictable.

2) Each system is a "holon." A holon is a whole in its own right that is composed of subsystems, and is at the same time, a part of a larger integrated system. An image of a holon might be visualized as a formation of expanding circular ripples that are shaped when a pebble is thrown into the water. Just as each circle nests inside the other, holons take the shape of systems within systems, and each new emergent form— from cell to organ, person to family, tree to forest— generates properties that cannot be reduced to the capacities of the separate components. Holonic order arises collaboratively from the bottom up as the system generates itself "from spontaneously adaptive cooperation between the parts, in mutual benefit (p. 42).

3) Systems continuously exchange a flow of matter-energy and information with their surrounding environment according to processes of negative feedback

loops that continuously match inputs to outputs, and maintain balance and stability. Negative feedback (also called *cybernetics one*) is used to register the behavior of the system with its norms. As an example, mammals maintain the same "normal" body temperature in both extremely hot and cold conditions.

4) Open systems not only maintain their balance in a state of disequilibrium, they also evolve in complexity. When environmental changes occur or dangers arise, if a living system does not fall apart or die, it undergoes a subjective process of self-organization that allows it to adapt. This is an interior function of positive, or deviation amplifying feedback, (also called *cybernetics two*) which tells the system that its old forms and behaviors are dysfunctional, and it challenges the system to seek more appropriate forms and behaviors in order to undergo transformations. Similar to Berry's (1988, 1999) *subjectivity*, this process is a form of interior cognition that does not require a brain (for instance, immune systems will remember and utilize infection-fighting processes throughout the body's lifetime).

The Holonic Processes: Dissipation, Autopoiesis, *Gaia* Hypothesis

When scientists first began to investigate the input-output systems of cybernetics in the 1950's, they studied the random, non-linear, and spontaneous activities of living systems and discovered that open systems have the ability to create order out of apparent chaos. At first they approached this self-organizational phenomenon from a mechanistic point of view, but by the 1970's and 1980's, people such as Illya Prigogine, (1917-2003) Francisco Varela, (1946-2001), Lynn Margulis, (1938-2011) James Lovelock, and Humberto Maturana expanded on the systems theories of biologist, Ludwic von Bertanlaffy, and as a result, the study of living

systems took on a more organic approach. It was from the understandings Berry gleaned from these scientists that aspects of his *cosmogenetic* principles, and specifically his principle of *subjectivity* took shape.

Dissipative Structures: The Work of Prigogine. Systems theorist, Illya Prigogine focused on the "dissipative structure" of a living organism, and in terms of thermodynamics, he studied how an open system simultaneously decreases its internal entropy (orders itself) by taking in and dissipating energy from its surroundings, thereby increasing external entropy (disorder). Prigogine's work revealed how living systems such as plants, which absorb sunlight, and animals, which consume other organisms, access energy and maintain the integrity of their structures, while living in a state of constant fluctuation (far-from-equilibrium conditions). Prigogine also introduced the process of *autocatalysis* (O'Murchu, 1997, citing Prigogine, 1980, 1984) which describes how in extreme conditions of chaos, open systems bring about order by moving through instability to create new, more complex structural forms. Prigogine called the matter that is organized in unstable conditions "active matter," and he claimed that the unpredictable process of intrinsic organization, which allows for the possibility of the emergence of new forms in critical conditions, is actually the source of order (what Swimme and Berry, 1992, call the *cosmogenetic principle)* in the evolutionary universe. Prignone's work, for which he won a Nobel Prize in 1977, illustrates the difference between mechanistic isolated systems, in which the second law of thermodynamics still appertains, and interdependent dissipative systems, in which the Earth's creative principles apply. Prigogine's discovery of the indeterminacy and unpredictability in

the behavior of dissipative structures when they are at chaotic points of disequilibrium broadened the worldview of scientists who had previously studied a static universe which they believed was ordered by determinism and predictability.

***Autopoiesis*: The Work of Maturna and Varela.** Maturna and Varela's work added to the growing body of theoretical knowledge that further differentiated self-organizing living systems from self-organizing non-living systems. In 1973, Maturna coined the term *autopoieses*, (*auto* means *self*, and *poiesis* means *creativity* or *productivity*) to describe the autonomous capacity of a living system to maintain its integrity by establishing internal organization to regulate order and behavior when changes occur in the environment (O'Murchu, 1997, referencing Maturna, 1980). The autopoetic process becomes clear if one compares a non-living self-organizational system such as a tornado, which is not able to maintain its stability if the environment changes, to a living self-organizational system such as a tree, which is potentially able to adapt to and survive environmental changes (such as tornadoes), even if its structure is damaged in the process. As spontaneous and creative living organisms, autopoietic systems exhibit a remarkable will-to-live, and "an amazing and intriguing capacity to regenerate" (O'Murchu, 1997, p. 178). In order to be considered auto-poietic, a system must satisfy three criteria: it must be self-bounded, (organizationally closed, with the ability to selectively relate to or "couple with" some, but not all, aspects of its environment) self-generating, (able to internally organize itself) and self-perpetuating (able to renew itself). An example of these three criteria in action can be found in even the simplest of cells, where, for example, DNA molecules in the

nucleus of the cell produce RNA molecules, and the RNA molecules in turn contain instructions for recognizing, removing, and repairing sections of DNA in the same cell nucleus (Coehlo, 2002). Maturana and Varela believed that a system's abilities to specify structural changes, to interact with its surroundings, and to choose the environmental conditions that trigger its internal transformations are actually acts of awareness that result from an organism's relationship to its environment. An example of such cognition can be found by contrasting the tendencies of a terrestrial plant that is rooted in a shady area and shapes itself outwardly in the direction of the sunlight, with those of an ocean plant, which, with only a fraction of sunlight, manages to grow upwardly with very shallow roots. Although both plants originated from the same ancestors millions of years ago, the autopoietic processes which triggered changes over evolutionary time resulted in differences in the "selective coupling" of the different plants with their surroundings. Maturana and Varela believed that a living system's ability to construct a world for itself in order to maintain its integrity is a foundation of autopoietic activity at all levels of complexity.

But organisms, as they increase in complexity, also increase in fragility and vulnerability, and sometimes, the internal chaos at the *bifurcation point*, the unpredictable point when a system will either adapt or break down, is too great for the system to maintain its integrity, and it does not survive. In humans, recovery from injuries, addictions and illnesses often occurs, but sometimes, the pressure is too much for the system to handle, and it is no longer able to renew itself. At that point, it shuts down and the person dies.

The *Gaia* Hypothesis: The Work of Lovelock and Margulis. The cooperative dynamics evident in the Earth's living systems led evolutionary scientist, James Lovelock and microbiologist, Lynn Margulis to hypothesize that the planet itself works as a integrated living system. Lovelock and Margulis (1973) were particularly interested in the finely tuned chemical balances of the biosphere as they contributed to the self-regulating processes of the atmosphere, the oceans, and the soil. Lovelock pointed out that without the constant activity of life, the composition of Earth would be similar to that of Mars or Venus, which is almost entirely composed of carbon dioxide and contains only small amounts of nitrogen and oxygen. Evidence of the Earth's tendency to regulate its atmosphere is found in the balance of oxygen, carbon dioxide and nitrogen that the Earth's living systems are able to maintain despite changing internal and external conditions. From the creation of the protective ozone layer in Earth's early days, to the emergence of nitrogen-fixing microorganisms which work invisibly to nourish the soil, to the development of plants capable of constantly replenishing oxygen through photosynthesis, to the formation of biological organisms which regularly remove carbon dioxide from the atmosphere, to the growth of rainforests which cool the Earth's temperature, Earth's living systems cooperate in such a way so as to sustain the correct atmospheric and climatic conditions in order to support the multitude of living beings on the planet. In the oceans, too, evidence suggests that living systems have maintained the same levels of salt for 3.5 billion years, despite the fact that heavy rains constantly wash eroded salt-laden soil into the oceans. Lovelock

believes that even the continued presence of water on the planet seems to be the result of the cooperative and regenerative processes of Earth's living systems.

Margulis focuses on the key role that the bacterial web of interconnected microorganisms has played in maintaining the chemical, atmospheric, geologic, and climatic conditions necessary for the sustenance of life throughout the history of Earth. She has studied the microscopic interrelated world of bacteria living in the air, the oceans, the rocks, the soil, and in the bodies of plants, animals and human beings, and the effects bacteria has had on the Earth's development over billions of years. She has discovered that autopoietic bacterial systems are the only systems to have defied extinction, and because of their ability to exchange genetic material throughout a complex network of interconnections, they have been integral to establishing the conditions for more complex life forms to emerge since life first began. She calls this complexification process *symbiogenesis*, and she describes it as a process by which complementary systems work synergetically in order that both might survive, such as those in the human body, where the non-human microorganisms, which make up half of the body's weight, not only rely on the body for their existence, but also metabolize food and manufacture vitamins to keep the human being alive. Margulis proposes that all eukaryotic cells are composite products of a symbiotic alliance between less complex organisms, and she claims that the formation of new entities through the symbiosis of two previously independent organisms is a powerful evolutionary influence (Hathaway & Boff, 2009, citing Margulis, 1996). In addition, she also recognizes the essential function of the symbiosis of micro-organisms in evolutionary processes such as

photosynthesis, respiration, digestion, fermentation, and the removal of carbon dioxide from the atmosphere.

Lovelock and Margulis, in developing a hypothesis about the integrated, cooperative nature of Earth's organisms, refer to the planet as *Gaia,* after the early Greek goddess of the Earth. Lovelock goes so far as to regard *Gaia* as a single living organism, constituted of a multitude of living inhabitants, but as a whole, endowed with faculties far greater than those of its individual parts. Many scientists, including Margulis reject this interpretation for a number of reasons, the primary one being that an organism has the ability to reproduce itself. Margulis recognizes the Earth as "a series of interacting ecosystems that compose a single huge ecosystem at the Earth's surface," (Hathaway & Boff, 2009, p. 266, citing Margulis, 1998, p. 120) but she does not claim it to be anything other than a highly complex system that could in some sense be regarded as alive.

Three versions of the Gaia hypothesis exist, and they are in varying degrees accepted by scientists: *Weak Gaia* proposes that life influences the non-biotic aspects of Earth, such as the atmosphere and the oceans; *Moderate Gaia* maintains that the biosphere modifies its environment and that organisms co-evolve (a complex process of integration between many interdependent systems which evolve in cooperation with each other rather than as distinct or isolated entities); *Strong Gaia* proposes that living organisms work together to regulate their environment with an overarching (almost mindful) goal of maintaining or enhancing conditions necessary for life. Of the three, the third is the most controversial because its hypothesis cannot be proven by scientific

experimentation, and because it de-emphasizes evolutionary activity that occurs due to chance (random mutation) and necessity (survival of the fittest).

To whatever degree scientists accept *Gaia* as a living entity unto itself, the underlying ideas proposed by the *Gaia* hypothesis, along with those of dissipative structures and autopoietic processes, provide a grounding for a shift in worldview, especially when they are connected to the underlying concepts of quantum theory. In considering the development of what one might call a holonic consciousness, important applications can be made in the way one experiences the world.

Quantum Applications and Integrations: The Holonic Shift in Consciousness

To challenge an individual whose consciousness has been shaped by Newtonian thought to not only understand the underlying concepts of quantum theory and its applications, but also to embrace quantum reality, which includes concepts of relativity, uncertainty, probability, complementarity, nonlocality, synchronicity, and change, is a challenge indeed. But in order to understand the holographic perspective of Berry's *Communion of Subjects* orientation, it is necessary to put aside many of the certainties of mechanistic worldview in order to "reinvent" a cultural perspective that regards the diverse, relational, inseparable, multidimensional (material-psychic-trans-spatial), "whole" as the basis of all reality. This shift in consciousness requires letting go of the Western cultural coding (Berry, 1988, 1999) that emphasizes assimilation, competition, control, accumulation, and survival of the fittest. It requires transforming a culture in which product is valued over process; efficiency is valued over creativity; control is valued over spontaneity; individuality is valued over relationship; and immediate gratification is valued over

saving for the future. It also requires realigning a culture that has historically privileged men over women, "white" over Indigenous, mind over matter, and scientific over traditional (Bai, 2009, in McKenzie et al; Bowers, 1997).

A foundational shift towards a holonic consciousness is the realization that although relatively autonomous, each holon—each cell, each tree, each human being—is also a part of a greater whole, and it not only reflects the reality of the whole, it cannot exist in isolation from the whole. A cell can be studied as a functioning entity unto itself, and each subatomic portion of the cell will contain the whole picture of the body to which it belongs, but a cell cannot exist independently outside of that body. A tree is an organism that has all of the components that make it a tree, and its bark or any one of its leaves will contain DNA information about its entire makeup, but its inner and outer workings will not function if it is separated from the ground and the air and the bioregion that surrounds it. A human is an autonomous individual that has a unique body, mind, and spirit; and a sample of human blood will reveal information about the human's entire genetic makeup, but the human cannot be separated from the air and the soil and the water and the other life forms that nourish and sustain it.

This is a realization that is essential to the shift in consciousness that Berry mandates. The perspective of the holon and the holographic lens brings to the forefront the absurdity of the human assault on the planet that has been occurring throughout the last several centuries. It serves to focus the reality that as humans pollute the air and the water and rob the soil of its nutrients, they are actually assaulting, polluting and robbing their own bodies and endangering their own

health. As humans objectify the other inhabitants of the Earth, and members of their own species, they are actually diminishing their own intrinsic worth, closing off their intuitive, imaginative and artistic capacities, and denying their own genetic tendencies for experiencing the multi-dimensional fullness of life. As humans persist in creating a false sense of happiness through the accumulation of money and material possessions, they are increasingly separating themselves from the interconnected bonding that empowers and sustains the web of life, alienating themselves from their personal relationships, and experiencing isolation, emptiness, and meaningless in their lives.

Berry's Quantum Answer: A Summary

From the perspective of the holographic lens, then, what is the answer to the question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects?*

Briefly, in summary, Berry's holographic shift in consciousness involves understanding the Universe is, first and foremost a seamless whole that is integral with itself, and that is held together in time and space by gravitational attraction that creates a total communion with every part of the Universe. It is therefore impossible to separate matter into a collection of objects because all forms of matter are in communion with each other through the complementary movement of energy. In addition, there exists an invisible, unbreakable bond between all reality that scientists still cannot completely explain other than to say it is a relatedness in which nothing is completely itself without everything else, and this relatedness is

both spatial and temporal. Thus, if isolated parts (working as a collection of separate objects) become disconnected or alienated from the whole (communion of subjects), dysfunction will occur. Berry believes the deepest cause of the present devastation on the Earth is found in a mode of consciousness that has established a radical discontinuity between the human and other modes of being and the bestowal of all rights on the human (Berry, 1999, p. 4).

The Holographic Lens of Berry's worldview reflects the realization that "[o]ur own future is inseparable from the future of the larger community that …sustains us in every expression of our human quality of life"(1999, p. 162). It is through the quantum principles underlying this inseparability that Berry urges modern Western humans to undertake a shift in consciousness to come to the realization that as a species, we must acknowledge the unseen energies that tie us together as human beings and as participating members of the community of life on the Earth.

Personal Connections: Holographic Perceptions of Inseparability

Responding to Berry's challenge to undertake a shift in my everyday conscious experience of the quantum world stretched my Newtonian-trained mind as I tried to glean an understanding of the exchanges of energies in the invisible yet very real space of atomic reality. But this part of my inquiry was essential, and in many ways provided the academic basis by which to substantiate and expand several aspects of my personal and educational philosophy. As an individual who has always followed a spiritual path, I found that concepts that previously I had come to "know" through personal experiences in my lifelong journey were now being acknowledged by scientists who are still in the process of investigating new

ways of "knowing" from differing perspectives. I also found many parallels between alternative ways of knowing, quantum reality, and the Indigenous worldview; and these connections confirmed for me the validity of creative, introspective, intuitive and kinesthetic ways of learning and teaching that I had previously practiced.

As my research developed, I found myself increasingly applying the principles of quantum reality and systems theory to real-life situations. For me, these practical applications provided an excellent foundation for making a case for living one's life and pursuing educational endeavors according to a *Communion of Subjects* orientation in which connection and compassion are fundamental principles. For example, the quantum concept of *Complementarity* challenges the Western mindset into accepting a reality in which symbiotic relationships and collaborative partnerships are more effective than individualized or competitive endeavors. The concept of *Relativity* challenges the Western preference for standardization and the absolute, and it opens up the possibilities for flexibility and diversity. The concept of *Paradox* challenges the Western compulsion for busy-ness, for accumulation, and for putting relationships on the back burner; and it acknowledges that things such as practicing silence and stillness, living simply, and developing compassionate relationships are key components to a healthy life.

The concepts of *Uncertainty* and *Unpredictability* challenge the Western mindset to wake up, come to terms with, and respond to the very real conditions of chaos on the Earth, conditions that have the potential to instigate creative adaptations and transformations in human behavior. *Probability* reinforces the *power-with* potential of current grass roots and social movements, and it reinforces

the potential of possibilities when communal energy towards adaptation and change gains momentum, especially in this day and age when global communication is instantaneous. The quantum understanding of *Transformation* challenges the Western trend to impose strategic goals and regulated reforms; rather, quantum transformation encourages small, organic, internal *power-from-within* deviations that build upon each other until they reach a tipping point and spill over in spontaneous bursts of creative renewal. The quantum attitude towards *Change* challenges the mechanistic systems that currently support the Western culture to undertake paradigm shifts towards a process-oriented approach to life. Similarly, the quantum attitude towards *Wholeness* challenges the Western mindset that separates race, religion, sex, belief systems, and ways of knowing, and establishes the argument that the human species must come together to act as an inseparable whole in order to become a beneficial influence to the future Earth community.

The quantum emphasis on *Relationship* acknowledges that personal, inter- and intra- relationships are the essence of existence, and it explains why the human species will destroy itself if it tries to exist in isolation from itself or from the other species of the Earth. *Nonloca*l global communication creates possibilities for forging relational connections that do not rely on technology, but on the energies of the mind when groups of people across the planet begin to think and act differently. *Synchronicity* challenges the fragmented Western mind to become attuned to connections, relationships and spontaneities that we have been trained to repress.

As I became familiar with the above processes, I became more open to exploring connections between the unseen energies of the Earth and inner human

spontaneities in my own life. In my practical inquiry, as I was studying quantum theory, I was also experiencing synchronicities, connections, and exchanges of energies with other-than-human beings that I knew were inciting very real changes in my own consciousness. My research had entered an area that people in the Western world often do not talk about in ordinary conversation, and although I discussed these quantum connections with those whom I trusted, it was one that I often refrained from sharing with others in an academic setting. It gave me solace to know, however, that science is now acknowledging the existence of an invisible implicate order and is connecting it to the often-unconscious processes that occur within the individual and within collective human experience. Terms such as *synchronicity*, *reciprocal energy exchange* and *inter-species communication* are now being used in the realm of scientific theory, and in time, these concepts have the potential to become more widely accepted in the realm of academic study, especially as Western institutions are increasingly recognizing and acknowledging the validity and wisdom of Indigenous worldviews.

In terms of my research, the exploration of the *Holographic* Lens was absolutely necessary as a foundation to the next stage of my inquiry, that of the *Inscendent* Lens of Berry's *Communion of Subjects* orientation. An understanding of the wholeness of quantum reality provided an unbroken perspective of inseparability that linked my study with my exploration of the Earth-human connections of primordial peoples, and with my personal experiences of connecting to my own inner energies, dreams and visions in the practical components of my inquiry.

CHAPTER SIX
THE INSCENDENT LENS

…[W]hat we are ultimately groping toward is the sensitivity required to understand and respond to the psychic energies deep in the very structure of reality itself…A cooperative understanding and response to forces that will bring about a proper unfolding of the earth process…I suggest that this is…the ultimate wisdom of tribal peoples… (Berry, 1988, p. 49).

The following is a theoretical exploration of Thomas Berry's Communion of Subjects orientation as it is seen through the lens of Earth-human interconnectedness and documented by Thomas Berry. References to the academic work of Carl Jung, Bill Plotkin, Gregory Cajete, Leroy Little Bear, Marie Battiste, Joseph Campbell, and other scholars provide supplemental information towards the comprehension of Berry's concept of inscendence. The Inscendent Lens provides a perspective for an understanding of the genetic coding of the human species inherited from our primordial ancestors, coding which has been preserved in Indigenous worldviews and is still accessible by those who undertake a shift in consciousness that connects them with the processes and energies of the Earth.

Inscendent Foundations: Deep Connections and Participatory Consciousness

As a cultural historian, Thomas Berry had a keen interest in exploring the ways in which people since the beginning of time had sought and found meaning and purpose in their lives. He paid particular attention to the understandings of *tribal-shamanic* peoples, whose rituals, traditions and languages were imbibed with deep spiritual connections to the Earth. To these ancient peoples, "the natural world

was the manifestation of a numinous presence that gave meaning to all existence" (Berry, 1999, p. 44). Berry became convinced that, in this critical time in the history of the planet, when Western humans have all but lost the sense of sacred connection to the Earth and her other-than-human inhabitants, we must look to the psychic wisdom of those "healthy, [sustainable] cultures" (Plotkin, 2011, in Laszlo & Combs, p. 43) from previous ages who trusted that their microcosmic instincts were inextricably linked to the spiritual processes of the macrocosmic Earth. He believes that our current period of chaos indicates that both the human and the Earth are in a period of transition, and the "cultural coding" that has separated Western humans from the rest of creation and from the numinous reality of the Earth is not sufficient to provide the guidance to take humanity into the next age. Berry is convinced that it is necessary for Western humans to reconnect to the "genetic coding" inherited from previous generations in order that they might summon the energy necessary to transform the mechanistic orientation of the man-made governmental, educational and religious institutions which have effectively de-spiritualized and de-souled the Earth (Berry, 1988, 1999, 2006).

Berry recognizes the truth of Einstein's statement that it is not possible to fix problems with the same type of thinking that created them in the first place. For that reason, Berry looks to the ways of knowing of primordial peoples who had lived in harmonious relationship with the other inhabitants of the Earth, and he discerns significant patterns of Earth-human interconnectedness that might serve to incite a modern-day shift in consciousness. A number of influential sources contributed to the development of Berry's "out of the Newtonian box" thinking, and he became

convinced that in order to make a transition into the *Ecozoic* era, modern humans must learn how to reconnect their external experiences to their intrinsic spiritual energies and to the numinous, sacred energies of the Earth. He invented the term *Inscendence* to describe this process of reconnection.

Berry defines *Inscendence* as an in-depth awareness of our human origins—and a continuous participatory experience with the pre-rational, pre-cultural, instinctive, spontaneous, mythic, archetypal, conscious, unconscious, visionary, and subjective resources inherent in human nature. It describes an interior process of attunement, involving a radical "shift of consciousness" that has the potential to energize and enable humans to take their rightful place as one species in the interconnected community of the natural world. Berry (1988) describes the current need for the development of an *Inscendent* lens below:

> We must go back to the genetic imperative from which human cultures emerged originally and from which they can never be separated without losing their integrity and their survival capacity. None of our existing cultures can deal with this situation out of its own resources. What is needed is …"inscendence," not the brain but the gene…
>
> …[T]he species coding of the human carries within itself all those deeper spontaneities that [have the capacity to serve as]…our guiding and inspiring force…when the cultural process has reject[ed] the [human] role as an integral member of the [E]arth community…(pp. 207-208).

From the holistic viewpoint of the *Inscendent* lens then, the following is an introductory exploration of how Berry's *Communion of Subjects* vision—as it

focused through the preservation of Indigneous worldviews—and through full human participation in the mysteries of the Earth—provides the means by which one might glimpse the interconnected principles underlying the following question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects?*

Other-than-Rational Ways of Knowing: A Brief Over-View

Barry credits Giambattista Vico (1668-1774), the subject of his doctoral dissertation, as being a major influence in the initial shaping of his epistemology. Vico was an Italian counter-Enlightenment proto romantic (Dalton, 2009) who disagreed with the narrowness of the Cartesian consciousness, and especially with the philosophy of Descartes. Vico proposed that truth expressed in creative imagination, introspective wisdom, sensory perception and the practical knowledge of ancient peoples came from other than rational kinds of knowing. The Vichian sense of knowing relied on accessing experiences of the past through language, symbol, myth, artistic expression and imaginative empathy to provide an inside knowledge of "the motivations and means of history…" (Dalton, 2009, p. 19) that might be applied to modern times.

Throughout the 1940's, Berry carried on an exploration of the ways of knowing introduced to him by Vico, and he became interested in the work of depth psychologist, Carl Jung (1875-1961) whose studies emphasized the need for journeying deeply into one's inner being in order to connect the human soul with the mystical powers of the natural universe (Campbell, 1991; Plotkin, 2003; Sabini,

2002). Berry's study of depth psychology and its link to primordial peoples led him to the work of Mircea Eliade, a historian-philosopher who studied the rituals, symbols and broad patterns of meaning embedded in Indigenous traditions in Western and Eastern cultures. Berry became particularly interested in Eliade's study of Hierophanies, (from the Greek *hieros* meaning powerful, sacred, supernatural, and *phaneia*, meaning to reveal or make known) otherwise known as the "tears in the fabric of the profane world that show a glimpse of the sacred world behind it" (Coehlo, 2002, p. 324, citing Eliade). Hierophanies occur in relation to the sky, the sun, the moon, water, stones, plants and the Earth, and they provided ancient peoples with intuitions and insights into cosmic harmony and wholeness. Hierophanies were often dramatized in rituals, symbols, myths, and healing practices that embodied the multi-dimensional reality of the Earth's processes.

Following Jung's and Eliade's lead, Berry expanded his work into the history of Canadian and American Aboriginal cultures to explore the psychic-symbolism and the nature-based rituals of the tribal-shamanic age (Lonergan and Richards, 1988). He developed a deep appreciation for the sacred connection that Aboriginal peoples have with the Earth, and he became convinced that their inseparable integration of spirituality into all of life's processes is key to the development of Earth-human interrelatedness. It was this appreciation that led him to name the wisdom of Indigenous peoples as one of four sources that will guide the future of humanity.

The First Inscendent Facet: Preservation of Indigenous Worldviews

Thomas Berry has a deep regard for the richness of Indigenous traditions and for mythic meanings which have preserved the primal knowledge of the First

Peoples of the continent, and have been passed down orally from generation to generation through the teachings of Aboriginal Elders. In his long association with Aboriginal peoples in Canada and the United States, many of whom referred to him as Elder, Berry developed a deep respect the genius of the people of Indigenous ancestry, who have "maintain[ed] their unique status as the original dwellers in this region of the world…not merely by their temporal priority, but also by their mystical understanding and communion with the continent" (1988, p. 181). Although Berry often refers to the unique traditional practices of individual peoples such as the Cree, the Iroquois, the Plains or the Lakota nations, he speaks more often of the characteristics shared by North American First Peoples as reflected in what is more generally called the *Indigenous Worldview*s (Little Bear, in Battiste, 2000, p. 17).

Indigenous worldviews and Indigenous ways of knowing are very important to the development of Berry's cosmic story. In fact, the following foundations of the Indigenous worldview are mirrored in Berry's *Communion of Subjects* orientation: A holistic view of the world; a realm of energy and spirit that is in a constant state of change and flux; an appreciation for subjective rather than objective language; a sense that Earth cannot be separated from the actual *being* of the individual; a sense that every being has spirit; an understanding of animate perception and reciprocity between human and other-than-human; a sense of the sacred in Creator and Creation; a connection to place; a connection to interior values that arise from primordial energies; individual and communal mythic meanings represented in symbol, ritual, tradition, and ceremony; a sense that consciousness is informed by constant movement in the cosmos; a perception of creativity as a process of

continuous emergence; an image of the circle and of concentric circles as representative of interconnected and interdependent relationships, and an emphasis on the power of story (Berry, 1988, Cajete, 1994, Little Bear, in Battiste, 2000; Parry, 2006). Interestingly, many of the above ancient principles also parallel the principles of ecological and quantum science developed in recent years. Yupiaq educator, Oscar Kawagley (1995) explains the inseparable connection: …"Time and again the stories have said that all of the living and non-living parts of the Earth are one and that people are a part of that wholeness. Today, Western ecological [and quantum] science agrees" (p. 12, citing Caduto & Bruchac, 1989, p. 5)

Berry believes that the preservation of Indigenous worldviews in spite of the devastating effects of Eurocentric colonization signals hope for the future of all peoples, and for the continent itself. As a strong advocate against assimilation, Berry is sickened by the violence of colonization, and by the continued colonial aggression perpetuated against the Aboriginal peoples of today (Berry, 1988). Rather than dwell on the disastrous consequences of the events of the past, however, Berry chooses to reflect on the following principles that have been preserved in Indigenous worldviews, principles that give hope to modern-day people who have begun to feel the consequences of a *Collection of Objects* mentality and are beginning to feel stirrings towards a *Communion* of Subjects shift in consciousness:

1) A consciousness that integrates a reverence for the Earth. Calling Indigenous consciousness "one of the most integral forms of spirituality," Berry identifies Indigenous worldviews' recognition of a "numinous presence throughout

the entire cosmic order" as a *nature mysticism* which provides "ultimate psychic support;" and he asserts, "This is precisely the mystique that is of utmost necessity at the present time to reorient the consciousness [of North Americans] toward a reverence for the Earth, so urgent if the biosystems of the continent are to survive" (1988, pp. 184-185). Berry is concerned, however, that secular Western mechanistic and political systems, which are schooled only in dealing with externals, might trivialize important spiritual elements of Aboriginal knowledge, and he advises that Indigenous worldviews cannot simply be adopted by people who have not been schooled in traditional ways of knowing. Marie Battiste, (2013) an Indigenous educator, addresses this concern, proposing "the acknowledgement for Indigenous knowledge must begin with Indigenous people themselves, [and they] must provide the standards, principles and protections that accompany the centering of Indigenous knowledge…" (p. 73). Battiste believes that Canadian educational systems can assist Indigenous peoples by deconstructing schooling that has maintained the foundations of Eurocentric privilege; by acknowledging the uniqueness of Indigenous knowledge and its reverential relationship to place, language, tradition and ceremony; and by providing opportunities for all learners to develop a respect for the wisdom of Indigenous knowledge and experience without appropriating it for reasons that do not align with or dishonor the unique perspective inherent to Indigenous peoples. Like Berry, Battiste stresses that people who have not had the benefit of the unified spiritual, physical and relational understandings of an Indigenous heritage cannot simply adopt Indigenous ways of knowing, and she emphasizes the power of what she calls "collaborative

conscientization" (2013, p. 69) when non-Indigenous allies become active in an "Indigenist" (Indigenous and non-Indigenous working together) movement that supports the rights and responsibilities of Indigenous peoples in ways that encourage a respectful sharing of knowledge on current social, ecological and global issues.

2) Interior communion with the archetypal world of the collective unconscious. In contrast to Western peoples who have developed rational processes and the phenomenal ego to the extent that they have lost an intimate communion with their own interior psychic processes, peoples of Aboriginal ancestry who have preserved Indigenous ways of knowing have an extensive capacity to access guidance from symbolism, dreams, visions, and their native languages. In addition, richly spiritual traditions such as the vision quest, sweat lodge ceremonies, tipi teachings, the Sun Dance renewal ceremony, the sacred pipe ceremony, healing rituals, the medicine wheel, drumming, Indigenous art, beading, storytelling, and tribal myths passed down orally by the Elders can be accessed to provide people who have been taught in the traditional ways of their Aboriginal ancestry with the psychic energies to move forward with meaning and purpose into the future. Westerners, and people who have lost touch with their Aboriginal roots, have a tendency to be wary of dreams, myths, and mysticism, and as a result, they may have not had the benefit of intergenerational story-telling, mythic language, spiritual traditions and ceremonies. Consequently, without these psychic supports in place, they are ill-equipped to adapt to a more sustainable way of life.

3) Subjective communion with the land and the inhabitants of nature. Berry believes that Westerners, with all their scientific formulas and technologies, have set themselves apart from the land and from the other inhabitants of the Earth, and they have and continue to mechanistically objectify and manipulate the land, even when there is evidence that Western "progress" is causing mass destruction and imperiling the ecosystems of the planet. Peoples who have preserved Indigenous worldviews, on the other hand, see the land as the place of their belonging, and they have an intimate, perceptual and subjective communion with the land and its inhabitants. Abram (2010) explains the difference between this worldview and the mechanistic worldview which separates human thought from the processes of the land: "Whenever we perceive the terrain…as a…determinable set of facts, then we are in truth not really perceiving the actual terrain at all…We may *conceive* of earthly reality as though we were not ourselves of it, but we can never *perceive* it as such" (p. 94). Berry predicts that in the near future, the Indigenous worldviews' mythic capacities for living in communion with the Earth, for preserving environmental traditional knowledge, and for communicating in languages that are perceptually connected to the land will be needed to balance the devastating effects of the Western mechanistic exploitation of the continent. Indigenous educator, Gregory Cajete (1994) agrees, and he believes that education of the future must prepare young people who have been raised with traditional Indigenous knowledge to take on leadership roles in the future.

4) The tradition of leadership. Great chiefs of the past "have attained an immortal place in the annals of human community…They stood as numinous figures

in a world that had lost its numinous qualities in favor of the practical qualities of exploitation and oppression" (Berry, 1988, p. 191). Berry asserts that the historical achievements, the languages, and the high levels of moral and spiritual development of the First Peoples' cultures have retained an amazing integrity despite the assault against them in recent centuries. He states, "These memories of the past…are not a romantic conception of what might have been, but a reality that has been and even now remains an abiding influence on this continent" (p. 193).

5) Resilience. Despite the prolonged attack on their identity, their languages, their land, and their cultural and spiritual traditions, the spirit of Indigenous worldviews are still very much alive, and they have given peoples of Indigenous heritage the physic support to endure in the face of great hardship. Berry believes that contemporary people of Aboriginal ancestry are now strengthened by a new consciousness that is taking them into the future to reclaim their identities and their languages, and advocate for their own rights and the rights of the land with a renewed confidence.

Indigenous educator, Glenn Aparicio Parry (2006) explains the *inscendent* source of the "new consciousness" to which Berry refers in more detail:

> [T]he spirit of the land itself [is] bringing back a resurgence of Native thought, bringing in effect, a "Turtle Island Renaissance." And as with the European Renaissance, it is necessary to look backward in order to go forward to draw on the wisdom of true "([A]b)original thought" that transcends time…[Knowledge] is beyond personal consciousness … Knowledge, like thought and spirit, is alive. And it may be that knowledge

> originates in the land itself…Native science recognizes a reciprocal relationship between knowledge, language, land and consciousness. The first languages are sacred languages…evoke something real (not metaphoric) in the land…(p. 30).

6) Language. Berry (1999) expresses amazement at the linguistic diversity of the First Peoples on the Earth, and at their ability to encompass a connective cultural orientation in their languages. Unlike the English language, which is noun-heavy, time-inherent, dichotomous, objective, quantitative, and often violent, (examples, such as *killing time, suppressing darkness, battling nature*) (Kovats, 2011, conference presentation), Indigenous languages are "verby"—action and process oriented, and generally describe subjective happenings rather than static objectivities, possibilities rather than certainties, and feelings rather than empirical observances. Because Indigenous cultures see everything in a state of fluctuation and change (very much like the wave and particle complementarity of quantum physics where energy and matter are in constant relationship), their languages reflect ongoing, holistic relationships that cannot be separated into *either-or* dualisms. Leroy Little Bear (in Battiste, 2000) explains:

> There is no animate/inanimate dichotomy. Everything is more or less animate. Consequently, Aboriginal languages allow for talking to trees and rocks, an allowance not accorded in English. If everything is animate, then everything has spirit and knowledge. If everything has spirit and knowledge, then all are like me. If all are like me, then all are my relations (p. 79).

In addition, Indigenous languages are interwoven into the processes and rhythms of the Earth. The Earth is Mother; she is sacred, as is all creation, as is the land that supports all life. Because creation is constantly emerging, the cosmic cycles are in constant motion, and the human, as an integral part of the movement, is in a constant state of renewal—hence, the rituals, the celebrations, the intergenerational storytelling, the seasonal patterns found in Indigenous worldviews—are expressed in a language that reflects the constant interrelationship with the Earth.

In light of the fact that ecologists, educators, quantum scientists, holistic health practitioners, environmental advocates, psychologists, theologians, and spiritual leaders, like Berry, are now recognizing the wisdom inherent in the Indigenous languages, in Indigenous worldviews, and in Indigenous ways of knowing, (Cajete, 1994) it is essential that current Western philosophy which has been shaped by the practices of colonization, undergo what Berry (1988) calls a reinvention of cultural coding. This transformative process has strong implications for Western education of the future—for teaching and learning that will foster rather than suppress Indigenous philosophies, languages, and ways of knowing for young people of all cultural and religious backgrounds. About this, Indigenous educator, Gregory Cajete (1994) states:

> Recent research of ancient and contemporary Indigenous philosophies by scientist/philosophers David Bohm, Fritjof Capra, and others, has made it apparent that many Indigenous people have incorporated understandings into their systems that are only now being explored or confirmed by the

> most advanced research in Quantum Physics. It appears that these preliminary realizations are only the tip of the iceberg. Exploration and re-examination of the philosophical and ecological foundations of primal cultures have begun in earnest…through more enlightened perspectives that have evolved from theoretical physics, ecology, theology, ethics, mythology and the psychology of consciousness. This examination has great potential for American Indians. It presents a contemporary foundation for interpreting important elements of the traditional paradigms of Native America in the context of a twenty first century world (p. 195).

Berry describes the kind of deep knowing that arises from integral participation with the Earth as *participatory consciousness*. It is the knowing that has been preserved in Indigenous worldviews, but it is also a type of connective and compassionate knowing that modern humans who undertake a shift of consciousness away from the mechanistic worldview are capable of experiencing. Such a shift begins with the practice of accessing rather than repressing one's genetic resources in order to connect to the spontaneities of the Earth. To exist as a *Communion of Subjects*, Berry calls humans to recognize our genetic heritage as not only the physical aspect of our being, but also "our richest psychic endowment, our guiding and inspiring force" (Berry, 1988, p. 208). Such recognition involves full participation in the profound mysteries of life.

Second Facet of Inscendence: Full Participation in Profound Mystery

Every human in every age experiences mysteries of life that are simply incomprehensible. Since the beginning of time, humans have been awed and

terrified by the energies of nature; they have been motivated by the conscious and unconscious desires of their own personalities; and they have been shaped by the search for interior meaning and purpose in the outer world of experience and relationships. In modern times, however, Western humans have become isolated from the wild spontaneities of the Earth, and they have subdued the wildness in their own natures (Berry, 1988, 1999; Plotkin, 2002; Sabini, 2002; Swimme, 1984, 1996). As a result, the natural world has become something separate from the human—to be feared, conquered, tamed—or protected (Anderson, 2010).

Thomas Berry is convinced that at this critical time, Western humans must rediscover their true roles as citizens of the Earth by tapping into the instinctual primal knowledge hidden deep within their psyches, and by reconnecting to their own creative inner energies in order that they might participate fully in the profound mystery of the universe community:

> … We misconceive our role if we consider that our historical mission is to "civilize" or to "domesticate" the planet, as though wildness is something destructive rather than the ultimate creative modality of any form of earthly being. We are not here to control. We are here to become integral with the larger Earth community. The community itself and each of its members has ultimately a wild component, a creative spontaneity that is its deepest reality, its most profound mystery (Berry, 1999, p. 48).

Archetypes: Mysterious Primordial Spontaneities

In exploring the human's integral relationship with the Earth community, in his early studies Berry delved into Carl Jung's study of *archetypes*, which fostered for

him an understanding of the nature of human embeddedness within the Earth. Jung described archetypes as universal, primordial spontaneities that channel energies according to complex patterns that have developed over evolutionary time (Jung, 1963). These invisible, active, psychic energies, which continually influence human actions and interactions, originate from the genetic inheritance of primal knowledge that is contained in human DNA; they are actually "deposits of ancient history …[that] …determine the basic pathway of development over the [human being's] entire life cycle" (Coehlo, 2002, p. 203). Human archetypes, which often arise in dreams and visions, integrate unconscious connections to the conscious experiences of individuals, and they organize internal and external responses to the natural environment, social groups, and internal bodily needs.

Jungs's concept of *Self* is connected to the patterns arising from archetypal energies that integrate and organize the conscious, unconscious, and ego dimensions of the personal psyche in a holistic unifying process called *Individuation* (Coehlo, 2002; Sabini, 2002). Berry's concept of *subjectivity*, the interior shaping and self-organizing dynamic of each being, parallels Jung's concept of *Self,* (Plotkin, 2003) and Jung's work with archetypes connected for Berry three aspects of the human species' rootedness to the wild spontaneities of the Earth: 1) A Deep Time Dimension: Formative, inherited and unconscious archetypal patterns—such as recurring images and motifs that appear in religious symbols, cultural mythologies, and dreams, are rooted in the *collective unconscious* (Sabini, 2002, citing Jung, LT, II, p. 540) inherited by all humans. The *collective unconscious*, which Jung (1957) calls *the great wild region*, is separate from the ego and beyond the events and history of

a person's life—and it contains all of the archetypes that are manifested out of the energies of the cosmic whole. For example, the "mother" archetype is an ancient patterning in the human psyche that has been passed down from human and pre-human mammalian history, such that when a woman becomes a mother, an instinctual bonding occurs between the baby and the mother. 2) A Mediating Dynamic Dimension: Creative powers arise out of the inseparable, enfolded ground of the cosmos, and are integrated with the body and the daily consciousness of the Earthly being in a way that is unique to the being, be it human, animal, plant or another creature. In the case of the human, individual and collective energies are driven by primordial instinctual desires and urges, and shared by humans in all ages and geographical regions to engage in similar patterns of human behaviors—to fall in love, to socialize with other people, to invent new technologies; to compose music, drama or literature; to compete in games of chance and skill; to condition mental or physical activities, and to adapt to changes in the environment, to name a few. 3) The Central Organizing Dimension: Jung's *Self* or Berry's *Subject*, like the holon of quantum physics, is the totality of the being it integrates, but it is also the integration of inherited patterns embedded within the Earth and the Universe (*Self* as a part of a greater whole). In the case of the human, the integrated body, mind, emotions, and sensations function as a form unto itself, but the system cannot exist without all of the other forms within the whole of the Earth. The chemical constitution of the human form emerges from the chemical constitution of the Earth; the instinctual human needs for sustenance, shelter, companionship, and stimulation arise from the inner spontaneities of the cosmos; and the survival

instincts of the human are triggered by interdependent connections to the other living and nonliving forms that constitute the Earth as a whole. The same energies that animate the human life animate all the life of the Earth (Campbell, 1991).

Jung used the analogy of a multi-storied house to explain the connection of human consciousness to the processes of Nature. He equated the basement of the house, which is unseen but gives the house its foundational support, to inherited primal knowledge, which gives humans their foundational support from the unconscious and invisible realm of the psyche. Likewise, he equated the floors above the ground to linear, conscious experiences geared toward the visible outer world. Jung's contention was that because modern Western humans give little credibility to the "irrational" intuitions, dreams, synchronicities (bizarre but meaningful coincidences) and other psychic processes that arise from their unconscious depths to suggest interconnectedness between the human psyche and the greater cosmic whole (Coehlo, 2002; Hathaway and Boff, 2009; Sabini, 2002), they make major life decisions based on only on externals, and they do not access important sources of foundational knowledge that are provided by Nature to give them guidance. Albert Einstein said much the same thing when he stated, "We have created a world that honors the servant [the rational mind] but has forgotten the gift [the intuition]" (Stanley & Loy, in Vaughen-Lee, 2013, citing Einstein), as did ecopsychologist, Theodore Roszak (2001) who called the repression of Nature-based unconsciousness the "deepest root of collusive madness in industrial society" (pp. 320-21). Further, Jung pointed out that Western consciousness of the last century, which has been largely developed by science and technology rather than

through artistic, spiritual or cultural endeavors, exhibits a "remarkable lack of introspection," (Sabini, 2002, p. 16) in regards to "hubristic tamperings with Nature" (p. 17). He stated: [The modern human]… "thinks that the gods and demons have disappeared from Nature and does not notice that they keep him on the run… [He] believes that he can do as he pleases and is perturbed that inexplicable anxieties plague him" (Sabini, 2002, citing Jung, p. 16). Swimme (1996) reinforces Jung's position by stating that no amount of societal controls such as jails and police forces will ever counter the ill-effects of living "in an asphalt-girded, machine-dominated, biologically destructive, and spiritually desiccated consumer society [that is] out of touch with the numinous powers pervading each being in the universe" (p. 36).

Berry recognizes that humans in the Western world have become alienated from their interrelatedness to the cosmos because scientific advancements have reduced the need for direct involvement with nature, and the Western lifestyle has largely negated the necessity for full participation in natural events. In addition, humans in the Western world who have been conditioned by the messages of a *Collection of Objects* mentality have become accustomed to instant gratification of their needs; and consequently, they do not know how to listen to the inner guiding energies that undoubtedly rise to question the ethics of the big corporations who genetically alter food, extract energy resources, and burn fossil fuels—to the detriment of the natural world. In this regard, Jung believed that Western humans share a *Collective Guilt* for environmental degradation because although we are not directly responsible for such things as deforestation, or fracking, or water contamination, we do bear responsibility for our passive acceptance of such

practices. Jung prescribed a remedy for such indifference—"to let…to invite—[to] allow Nature" (Sabini, 2002, p. 19) to affect us and to heal us. Interestingly, this is not an onerous task. Jung suggested humans live simply, connect to the land, avoid television and technology, pay close attention to dreams, and establish a non-dominant attitude and interaction with other-than-human members of the planet.

These suggestions are not unlike the *Communion of Subjects* principles offered by Berry, who uses Jungian-type language to call for the evocation of energies of "hidden in the dynamics of the earth and in the obscure archetypal determinations in the unconscious depths of the human mind," (Berry, 1988, p. 39). Central to such a shift in consciousness is the development of an *ecological consciousness* (Hathaway & Boff, 2009) developed out of a reconnection to the archetypal sources of archaic wisdom. Coehlo (2002, p. 208) explains:

> Part of the urgently needed shift in consciousness to reclaim immersion in the Earth involves recognition of the great influences and power of these ancient, semi-autonomous components of human behavior. In them, though largely hidden from daily consciousness, there exists a direct, profound continuity of human nature with …the formative patterns of Earth in which the archetypal patterns evolved. They are major factors determining human destiny... Work with these archetypal patterns is part of the task of developing an original relationship with the Earth.

Mythic Meaning

Concurrent with Jung's study of archetypes was his exploration of myth, the age-old way that humans create meaning, harmonize purpose with reality, and

discover the spiritual potentiality of life (Campbell, 1991, pp. 2-5). Jung's investigations into the cultural myths of ancient and medieval peoples coincided with Berry's early study of cultural history, and Jung's insights provided important foundations for Berry's *New Story,* which would be written almost forty years later. Jung, who believed that modern men and women suffer from a lack of mythic meaning in their lives, asserted that Western humanity, which has "lost all metaphysical certainties" (McKnight, 2006, citing CW 10, 1964, p. 81) is suffering from a fracture of psyche and matter because individuals are so engaged in achieving objects of external value that they have forgotten the inner value that comes with a vital relationship with the natural world.

Jung's study of myth provided for Berry an incentive for exploring the role that myth had played in the lives of historical peoples, but other than stating that the modern Western industrialized culture desperately needs a workable myth, Berry does not offer a description of the mythological foundations that are necessary to energize Western humans to move into a more sustainable future. In this regard, mythologist Joseph Campbell (1991) provides a more comprehensive explanation of the historical function of myth in ancient and medieval Eastern, Indigenous, and Western cultural and religious traditions. To begin with, Campbell states, all mythology is based on the understanding that there exists an invisible plane of reality that is not bound by time and space, and this invisible plane (which is no concrete thing) supports the visible plane of experiences which take place over time and within space. Within the ultimate realm of *no-thing-ness*, there are invisible spiritual energies that arise from a numinous power that animates the manifested

forms of all plants, animals, humans, and other beings (what Berry calls the *subjects*) in the universe. This power is an "undefinable, inconceivable mystery…that is the source and end and supporting ground of all life and being" (p. 40). For human beings, myths arise from this supporting ground to give people clues about the spiritual potentialities of the human life.

Campbell describes the function of myth as fourfold: mystical, cosmological, sociological and pedagogical. From the mystical perspective, myths inspire humans to seek a higher level of consciousness in which they envision the eternal "oneness" of reality and experience the "ultimate mystery of [their] own being, which is the mystery of the world as well" (p. 263). Campbell suggests that humankind's one great story is "our [mystical] search to be in accord with the grand symphony that this world is (p. 65)." About the journey involved in this great story, he states:

> You are more than you think you are. There are dimensions of your being and a potential for realization and consciousness that are not included in your concept of yourself. Your life is much deeper and broader than you conceive it to be here. What you are living is but a fractional inkling of what is really within you, what gives you life, breadth, and depth. But you can live in terms of that depth (p. 70).

From the cosmological perspective, myths connect humans to the collective unconscious, the inexhaustible source of biologically grounded archetypal energies from which the same images have appeared in the inward experience of the human body in every culture throughout historical time. These ancient sources of energy that are passed down through human DNA also serve to assist the human to

harmonize the mind "in accord with the body and the way of life in accord with the way that nature dictates" (Campbell, 1991, p. 87) in the evolutionary journey of *becoming*. They also arise in the form of personal dreams—also called private myths, which relate temporal conditions of life with permanent conditions of the psyche; and they arise in the form of archetypal, or public dreams, which can inspire the expansion of collective energy of mythic dimensions.

Cosmologically, tribal myths establish sacred places where humans find their place of belonging and access the energies of life, and where cosmic relationships are formed between the landscape and the human, in which each has an effect on the other. In these sacred places, the animals, birds and plants of the land are often invested with spiritual gifts, and humans go to these and other sacred sites to seek knowledge and wisdom. On occasion, birds and animals appear to teach humans what they need to know, and sometimes these other-than-human beings have special powers that the humans do not have, and the spirit of the animal becomes the support for the human.

In addition, the cosmological aspects of myth inspire humans to align themselves with their specific purpose in life (what Campbell calls their *bliss*), to recognize "each form has its own intentions, its own possibilities," (p. 211) and to actualize harmonious, compassionate, reciprocal relationships with the other beings of the land, sea and air. These aspects echo Berry's cosmogenetic principles of differentiation, subjectivity and communion.

From the sociological perspective, tribal myths link the human to his or her social group, affirming that he or she is a member of a particular society, and

providing a mythological identification with the group through rituals and ceremonies. Social myths deal with spiritual principles—such as temperance, courage, love, loyalty and courtesy—that guide the individual in his or her relationship to society—from the dependency of childhood, through the initiation of adolescence, on to the responsibility of adulthood, through the decline of maturity and wisdom of elderhood, and towards eventual death. Sociologically, myths reflect the culture, time and place of the society they represent, and their messages are kept alive in artistic expressions of the societal symbols and images that transcend space and time.

From the pedagogical perspective, myths are the stories about the wisdom of life. They teach humans about themselves, about intrinsic values, about their spiritual potentialities, and about developing empathy for others. They teach humans how to think creatively, how to reflect on symbols and images, and how to connect their imaginings to the mission of their own life's journey. Most importantly to Campbell, (1991) they teach young people how to "stay on the beam," (p. 285) and follow their own interests rather than pursuing endeavors for reasons that do not align with "the rapture of being alive" (p. 5). Berry would add that myths teach that the mission of each human's life is to walk in compassionate solidarity with other beings, and to passionately advocate for the health of the Earth with the same passion that one advocates for the health of one's own body.

Urgent Need for a New Mystique

Currently in the West, young people have little contact with the myths of ancient or medieval peoples, and often, they are not being educated about values,

spiritual potential, compassion, or the wisdom of life (Berry, 1999; Campbell, 1991; Plotkin, 2003; Swimme, 1996). They have no rituals or initiations or ceremonies that introduce them to the Earth and its processes, or to adulthood and its responsibilities (Berry, 1999, Plotkin, 2003). They live in a society that is suspicious of intuition and visionary experience, and that often discourages the in-depth exploration of the arts and poetry, favoring instead rational, accumulative and academic pursuits (Berry, 1999). They live in a world where great numbers of people seek a change in consciousness with alcohol or drugs, and where many young people seek belonging in gangs that carry on their own initiations (Campbell, 1991). From a very early age, young people are shaped by pervasive advertisements that target their interior energies and seduce them into believing that pursuing happiness means making a lot of money and buying a wealth of material possessions.

The modern-day myths that Western young people do encounter are found largely in the movies. Media expert, Richard Leonard (2010, Conference presentation) suggests that the stories of the movies reveal much about the reality of the times. He finds it interesting that in the past decade, the biggest box-office hits have been about humans who are invested with embodied and psychic powers that they use to change the world for the better. He, along with Brian Swimme, (1996) also finds it revealing that for the first time in movie history, a great number of films have to do with the end of the world as we know it, and with heroes, male and female, who draw on their inner energies to save themselves and others. The popularity of movies such as *The Day After Tomorrow (2004), Superman Returns*

(2006), and *The Hunger Games* (2012, 2013) indicates that the potential for mythic vision still exists in the modern world.

At this critical point in the Earth's history, Thomas Berry (1999) proposes that what is needed is a Mystique of mythic proportions that creates a fascination, such as that of artists and poets, with the grandeur of the universe—a mystique that has the potential to break the captivating spell of the mechanically driven accumulative mentality that has seized us, and to evoke the collective energies needed to change the entire modality of the existing Western worldview. Berry's *Dream of the Earth* (1988) arises from the mythic energies that provide a central focus on the Cosmos for all humans. Such a myth has the potential to transcend science, culture, race, religion, and sexual orientation to bring humans together as a species—to concentrate on the one thing they have in common—their home, the Earth—and the life forms that it supports. One might imagine the journey of the human in such a Cosmic myth—setting out on a quest of the spirit and heart; energized by one's sense of intrinsic value and integrity; motivated by one's loyalty, and passion for the sacredness of the planet and all of its members; encouraged by one's connection to those on a similar path; guided by profound communications from members of the other-than-human world and by invisible, ancient, archetypal energies that arise from the Universe; and propelled into right and courageous action by a sense of deep compassion —to reach one's full potential as an integral advocate of the *Communion of Subjects* called Earth.

It is not an impossible dream; in fact, it is the dream of people such as Joanna Macy, Jim Conlon, and Bill Plotkin whose perspectives have been focused by many of

the same foundations of Berry's *Inscendent Lens*. These individuals represent millions of others throughout the planet who have made it their life's journey to guide people, individually and collectively, into what Macy (www.joannamacy.net) calls *The Great Turning*, and *The Work that Reconnects.*

Berry's Inscendent Answer: A Summary

From the perspective of the *Inscendent* lens, then, what is the answer to the question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects?*

Briefly, in summary, Berry's *Inscendent* shift in consciousness involves the understanding that ancient, primal ways of connecting to the Earth are passed down through the genetic coding of all human beings; that by attending to ancient archetypal energies that present themselves in dreams, visions, fantasies, and intuitions, humans can connect to the invisible energies of the collective unconscious to access meaning and purpose in their lives; and that by tapping into the energies necessary to become a mutually enhancing presence on the Earth, humans will learn to revere and respect the Earth as a sacred place.

Berry's *Inscendent* lens presents a different perspective of the concept of inseparability from that explored in the *Holographic* Lens, but the two lenses share many similarities. Science is now just discovering through rational pursuits what ancient peoples have known intuitively since the very beginning; namely, that our planet is a actually a *Communion of Subjects* whose processes and rhythms are

inextricably connected to the mysterious spontaneities present in each subject of the Earth.

Personal Connections: Inscendent Perceptions of Inseparability

Responding to Berry's challenge to connect to one's primordial genetic coding by developing a participatory consciousness resulted in a major shift in the way that I relate to the other-than-human world. In the experiential aspects of my research, I paid close attention to my dreams, to communications from members of the other-than-human species, and to synchronicities, spontaneities, and intuitions that guided my inquiry process. As I developed the academic components of the *Inscendent* lens, I also honed an attunement to the connections between my inner spontaneities and the inner energies of the Earth, and this exploration became very personal to me.

I believe that these connections were facilitated by regular contemplative practice that I engaged in over the past four-and-a-half years. During the entire span of my research process, I spent time each morning in a contemplative space of silence and stillness, and almost daily, I took the time to go for long, solo meditative walks in the natural world, during which time I became attuned to the psychic energies that surrounded and enlivened me.

Whenever I experienced dreams that I felt intuitively were important to my journey, I spent hours reflecting on them, and I often combined these reflective periods with journaling, drawing or free-hand writing. I spent long periods of time unpacking the significance of the dreams that arose from connections to animals and birds in the wild. I also paid close attention to the synchronicities that happened

in everyday life, especially in relation to trees and birds and animals, and I engaged in methods which allowed me to contemplate these connections from many angles.

I believe that my ultimate shift in consciousness, which occurred as a result of a mystical-like experience of connected communion with the Earth (described in the third and fourth stories of Chapter Nine), would not have happened without regular meditative practice and the development of a non-dualistic contemplative space. Such a space is the subject of the fourth perspective of Berry's orientation, the *Non-dualistic* lens, which is explored in the next chapter. The non-dualistic lens was a very personal lens for Berry, and it was connected to his mystical experience at a young age and to his choice as a young man to follow a contemplative lifestyle. It gave clarity to his roles as a priest, as a scholar immersed in Western and Eastern classical traditions, as a student of cultural history, science, and Indigenous wisdom, and as an advocate for the natural world. It was the lens that shaped the perspectives of inseparable wholeness in his worldview, and it became the metaphorical progressive lens that integrated the *Cosmogenetic, Holographic* and *Inscendent* lenses within the frame of his *Communion of Subjects* vision for a sustainable and just future for the Earth and all of its inhabitants.

CHAPTER SEVEN
THE NON-DUALISTIC LENS

"…It is a question of interior richness …The excessive analytical phase of science is over. A countermovement toward integration and interior subjective processes is taking place within a more comprehensive vision of the entire universe…" (Berry, 1988, pp. 37-38).

The following is a theoretical exploration of Thomas Berry's Communion of Subjects orientation as it is seen through the personal lens by which he navigated his own life's journey. Documented by Thomas Berry, and enhanced by references to the scholarly work of Mary Evelyn Tucker, Mary Conrow Coehlo, Judy Cannato and the personal stories of Western, Aboriginal and Eastern mystics and contemplatives, it provides a perspective for an understanding of the importance of non-dualistic contemplative knowing and compassionate action in undertaking a shift in consciousness towards the Communion of Subjects theme in Berry's New Story.

Nondualistic Foundations: Mysticism, Classical Traditions, Contemplation

As a young priest who sought a holistic understanding of the meaning of life, Berry was intrigued by Nature mysticism, by Western scholastic and contemplative traditions, and by strains of non-dualistic philosophy in Eastern religions, which in their beliefs and practices, sought an expansion of consciousness and perception, and a broader and more unified vision of reality. Throughout his life's journey, as he increased his in-depth awareness of the multiple dimensions of reality, and became increasingly concerned with ecological justice, Berry discovered the contemplative pathway as the means by which humans, as one species in an interrelated realm,

might fully experience a subjective, mutually enhancing type of non-dualistic active participation within the interconnected web of Earth's processes.

In the following passage from his *Great Work*, Berry describes the experience that impacted his entire life's journey:

> *At the time I was some eleven years old. My family was moving from a more settled part of a small southern town out to the edge of town where the new house was being built. The house, not yet finished, was situated on a slight incline. It was an early afternoon in May when I first wandered down the incline, crossed the creek and looked out over the scene.*
>
> *The field was covered with white lilies rising above the thick grass. A magic moment, this experience gave to my life something that seems to explain my life at a more profound level than almost any other experience I can remember. It was not only the lilies. It was the singing of the crickets and the woodlands in the distance and the clouds in an otherwise clear sky. It was not something conscious that happened just then. I went on about my life as any young person might do.*
>
> *Perhaps it was not simply this moment that made such a deep impression upon me. Perhaps it was a sensitivity that was developed throughout my childhood. Yet as the years pass this moment returns to me, and whenever I think about my basic life attitude and the whole trend of my mind and the causes that I have given my efforts, I seem to come back to this moment and the impact it has had on my feelings for what is real and worthwhile in life.*

> *This early experience, it seems, has become normative for me throughout the entire range of my thinking. Whatever preserves and enhances this meadow in the natural cycles of its transformation is good; whatever opposes this meadow or negates it is not good. My life orientation is that simple. It is also that pervasive.* –Thomas Berry, (1999, pp. 12-13)

The above passage is particularly significant in Berry's writing because he clearly identifies the origins of his passion for the Earth, and he describes directly the perspective from which the other lenses in which he sought understanding of the world evolved. It also gives his readers a glimpse of Berry's powerful childhood mystical experience of "oneness" or "communion"—of connectedness between inner and outer, subject and object, self and universe—that stayed with him for the rest of his life and became the integrated personal lens by which Berry framed his *Communion of Subjects* worldview.

From the perspective of the *Non-dualistic* lens, the following is an introductory exploration of Nature mysticism, Western and Eastern classical influences, and the contemplative pathway integrated into Berry's *Communion of Subjects* orientation and the holistic foundations of the following question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects?*

The First Facet of Non-Dualism: Nature Mysticism

Mysticism has manifested itself in all cultures, all ages, all spiritual and religious traditions, and all places where humans live on the Earth (Happold, 1963).

A mystical consciousness is one in which a broader view of reality is made accessible to the individual perceiving it—a consciousness of, an intuition, or a unified vision of a *beyond* or an *unseen* reality that, although intermingled with conceptual reason, sense perception, memory and introspection, is an extension of the rational mind and the visible, physical world. Nature mysticism provides an "all at onceness" (Coehlo, 2002, p. 125) grasp of the wholeness of the universe, the undivided unity from which all subjective beings on the Earth emerge, and the integration that brings all Earthly subjects together.

Having had a mystical experience in which he experienced the Earth as a communion of subjects, Berry was intrigued by figures in Western, Eastern and Aboriginal traditions that had experienced mystical visions similar to his own. Echoes of his *Communion of Subjects* orientation are found in his references to a number of mystics, but three in particular stand out in his writing. The first two, Hildegarde von Bingen, (1098-1179) and Francis of Assisi (1182-1226), were medieval Christian mystics who despite the institutional laws that governed them, acted out of an inner authority and an awareness of a much greater reality than that which is perceivable by the conscious mind. The third, a contemporary Aboriginal mystic named Black Elk (1863-1950) was a Lakota Sioux Elder whose powerful childhood visions guided him in the leadership of his people through times of great peril and hardship. There are striking similarities between each of these three figures and Thomas Berry, and it is in their stories of mystical experience and connection to Nature that parallels to Berry's *Communion of Subjects* orientation shine through.

Hildegarde von Bingen: An Inspiration For Our Modern Day

In an essay about Hildegarde's contribution to a comprehensive Western ecological spirituality, Thomas Berry recognizes her life's work as a precursor to the ecological movement, and he acknowledges her as an enlightening guide who timelessly inspires individuals to a "more functional relationship between the human and the natural worlds" (Fox, 2002, p. 3).

Hildegarde von Bingen was a German woman, who like Berry, as a very young child, had a powerful mystical experience that influenced the rest of her life. She entered the monastery at eight years old, and became a Benedictine nun during the time of the Crusades. Although she did not receive a formal education, Hildegarde eventually became a scientist, medical doctor and an abbess. Throughout her lifetime, she experienced a strong connection to the Divine Feminine and to the Earth as Mother in a number of powerful visions. In her visions, which came from a mystical level of consciousness, she saw the suffering, the love, the harmony and the interconnectedness of all creation. She delighted in her own femininity and the sensuousness of the Earth; she instinctively felt compassion for all life forms, and she profoundly believed "there is no creature that lacks an inner life" (Fox, 2002, p. 6). She trusted the Earth's healing powers, and she recognized the importance of herbs, plants and stones in her medical work. She also proposed that those who are connected to the Earth have the ability to intuit what the Earth is saying. More than eight hundred years ago, her prophetic mantra was, "Wake up. Don't you see what we're doing to the Earth?" (Gately, 2012, personal communication).

Berry recognizes in Hildegarde a woman who was aware that Eco-justice is a necessary context for all aspects of social justice—be they struggles involving economics, gender, race or class (Fox, 2002; 2011, in Laszlo & Combs, citing Berry in personal communication). Acting out of an inner authority that was stronger than the papal or governmental authorities of the time, Hildegarde passionately preached in public against oppressive institutions on behalf of those in the margins. Despite the harsh punishments of her day—especially for women who spoke out against male authority—she publicly challenged the rules if they were unjust. In addition, she found a way to communicate her ecological message to the masses, despite the fact that as a woman, her freedom to express herself was limited.

Determined to record the integral relationships of the Earth and the heavens that were depicted in her visions, Hildegarde communicated through the arts. She became a poet, a composer and a painter, and through these mediums, expressed the subjective experiences of her visions. Today, she has been named a Saint for Our Times. Thomas Berry recognizes Hildegarde as a timeless model of feminine wisdom who exemplifies the power of connecting the energies of the Cosmos with the energies of one's inner creativity (Fox, 2011, in Laszlo & Combs).

Hildegarde is most famous for her painted mandalas, a series of visionary symbolic paintings that depict cosmic myth and archetypes, which are visually as strong as the words she used to describe them. Central to Hildegarde's mandalas is the understanding of a 'cosmic equilibrium' (of all reality), a reverence for all life, an animating life-force within all creation, and a multi-layered depiction of reality.

Hildegarde's artistic wisdom is illustrated in images of interconnected

concentric circles that share the same center. The mandala below entitled "All Beings Celebrate Creation," reveals the creative intricacies of Hildegarde's work:

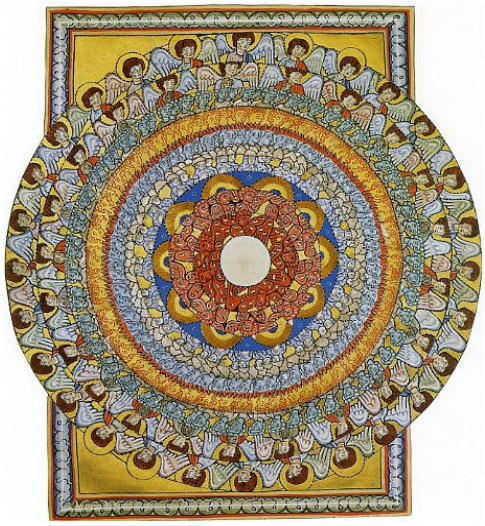

Figure 6. Mandala "All Beings Celebrate Creation" (http://sfmosaic.wordpress.com/2010/11/20/hildegard-von-bingen/)

Echoes of Hiledgarde's story appear in Berry's own philosophy in regards to feminist wisdom, social and ecological justice, a three-dimensional reality, participatory consciousness, compassion for all of Earth's inhabitants, instinctual archetypal connection, artistic ways of knowing, and the powers of creativity in matters of communication.

Francis of Assisi: A Model of Humility

Often compared to Francis, Thomas Berry recognized in his predecessor a man who, inspired by the power of a dream, underwent a radical conversion; and as a result, began acting with compassion and advocating for justice on behalf of all living creatures, even if it meant challenging his own father and the political power structures of his time. Francis was born into a noble merchant family, and at a young age, had high ambitions to become a wealthy Knight. But after becoming a

prisoner of war for a year, and spending another year recuperating before he set forth to fight again, he experienced an epiphany in the form of a dream, which inspired him to seek enlightenment about his purpose in life. Soon afterwards, he encountered a leper on the road, and he challenged himself to overcome his aversion to the man. He got down off his horse and embraced the leper, and for the first time in his life, felt the freedom of relinquishing the dominance of his own ego. From that point on, he responded to an inner calling to advocate for the lepers, the poor, the powerless and those in the margins. A subsequent gospel message prompted him to give away all of his earthly possessions, embrace a lifestyle of poverty, and become a "poor, itinerant …brother to everyone he met along the way and to all of creation" (Bodo, 2008, p. xxi). Soon, other men joined him, as did a noble woman named Clare, and together they formed a monastic brotherhood and sisterhood of followers who became contemplatives in action, working for the benefit of all who were powerless in society. Francis' love extended to a compassion for all living creatures, whom he called his brothers and sisters, and about whom he created a poem called *Canticle of the Creatures,* described as "the work of a mystic…a song [about] living in the family of creation" (Delio, Warner, & Wood, 1999, p. 82). It is quite possible that Thomas Berry recognized in Francis' transformation and subsequent lifestyle of humility a model of someone who had reinvented himself—"at the species level, with critical reflection, within the community of life-systems" (Berry, 1999, p. 159). As a person who had also embraced a lifestyle of contemplation in action, who had challenged the authorities of his day on behalf of all of Earth's inhabitants, and who had humbly accepted the punishments that came

with his "scandalous" views (he was not allowed to teach for a time, and was ordered to become a doorman at a monastery), Berry, in many ways, walked in the footsteps of Francis. This was acknowledged publicly in 2006, when sculptor Frederick Franck donated an iron statue of Francis to the Green Mountain Monastery, the place where Berry spent his last years, in honor of Thomas Berry. The dedication on the statue read: "I dedicate this steel icon to the deathless spirit incarnate in one of the most precious of my contemporaries. Like that of St Francis of Assisi, Thomas Berry's life testifies to the indestructible human spirit, the surviving triumph of human wisdom over all the follies and cruelties of our generation" (2009, *ncronline.org/.../fr-thomas-berrys-burial-service-green-mountain-monastary).*

Black Elk: A Visionary Teacher

Black Elk (1863-1950) was a Lakota Sioux holy man who experienced a powerful mystical vision when he was only nine years old, and this experience stayed with him for the rest of his life. Almost sixty years later, in 1932, he shared his childhood vision in precise detail with John G. Niehardt, and in 1947, he shared the traditions of his people with Joseph Epes Brown (1988). Berry, who was known to carry a dog-eared copy of *Black Elk Speaks* (1932) around in his pocket, appreciated Niehardt's description of Black Elk's powerful vision and its portrayal of the "continuity of the human with the natural world in a single sacred community" (Berry, 1999, p. 23). He recognized in the teachings of Black Elk "a renewal of [I]ndigenous thought [towards] an intimate presence of the human venture with the great cosmic liturgy of the natural world" (Berry, 1999, p. 19) and important

threads of Berry's own *Communion of Subjects* teachings reflect those of Black Elk (Fox, 2011, in Laszlo & Combs).

In Black Elk's vision, he was carried by a bay horse and followed by twelve colored horses from the four directions, who took him to a place where he was called, given gifts, and taught the lessons of his six Grandfathers, whom he recognized as Powers of the World. The first from the West, gave him his name, Eagle Wing Stretches, a cup with the power to enliven, and a bow and arrow with the power to destroy. The second from the North, gave him a white wing with the power to cleanse and a herb with the power to heal. The third from the East, gave him a sacred peace pipe with the power to spread wellness upon the Earth. The fourth, from the South, gave him a bright red stick by which to place in the circle of the nation's hoop with the power to make it blossom into new sources of strength. The fifth, the Spirit of the Sky, pronounced the wings, the winds and the stars as Black Elk's relations; and the sixth, the Spirit of the Earth, pronounced all creatures of the Earth as his relations with the warning, "Your nation on Earth will have great troubles" (Niehardt, 1961, p. 30).

In the second half of his vision, Black Elk was guided in the use of his new powers by a Great Voice, who helped him to lead his people through the red road, (which was the road of goodness, going from North to South), through the black road (which was the road of troubles and war, going from West to East), and through four ascents, which tested his powers of leadership to the limit. Near the end of his visionary ordeal, the Great Voice pronounced, "Behold the circle of the nation's hoop, for it is holy, being endless, and thus all powers shall be one power in

the people without end…" (Niehardt, 1961, p. 35). With that, a vast cosmic dance of the colored horses erupted and took Black Elk to the top of the highest mountain. Almost sixty years later, he described his experience as follows:

> And while I stood there I saw more than I can tell and I understood more than I saw; for I was seeing in a sacred manner the shapes of all things in the spirit, and the shape of all shapes as they must live together like one being—and I saw that the sacred hoop of my people was one of many hoops that made one circle, wide as daylight and as starlight, and in the center grew one mighty flowering tree to shelter all the children of one mother and one father. And I saw that it was holy (Niehardt, 1961, p. 43).

For the rest of his life, Black Elk used his powers for the good of his nation. The story of Black Elk's leadership was one of preserving the spiritual heritage of his people through periods of great hardships. In the *Sacred Pipe* (1989) Black Elk describes the significance of the drum, which represents the throbbing heart of the whole universe; the circle, which represents the interconnected relationship of all life; and the Sundance, which represents an offering of "gratitude for the gift of life" (Berry, 1999, p. 171) from the people to the Great Spirit of the Universe. Berry found substantial significance in all of these symbols (Berry, 1999; Kovats, 2011, conference presentation; Tucker, 2012, conference presentation), and underlying threads of each, along with the following words of Black Elk give focus to Berry's *Communion of Subjects* orientation:

> The first peace…is that which comes within the souls of men [and women] when they realize their relationship, their oneness, with the universe and all

its Powers …there can never be peace between nations until there is first known that true peace…within the souls of [humans] (Brown, 1989, p. 115).

Second Non-Dualistic Facet: Influences from the Classical Traditions

Thomas Berry credits the great classical traditions of the West and the East for establishing deep interior human values and norms of reality that have endured for the past several thousand years, and he names the classical traditions as the fourth source of wisdom which he believes will support humanity in the future. Berry acknowledges the sense of the sacred central to the classical traditions as wisdom "based on revelatory experiences of a spiritual realm both transcendent to and imminent in the visible world about us and in the capacity of humans to participate in that world to achieve the fullness of their own mode of being" (1999, p. 185).

In the West, the contemplative traditions of Christianity, which until, the fourteenth century, were refined by those who followed a monastic lifestyle, were influential in shaping Berry's own non-dualistic worldview, as were the works of medieval scholar, Thomas Aquinas (1225-1274). Aquinas' observation that every being has the capacity to experience *carpax universi*, became one context for Berry's belief that the story of the Universe is the story of each being in the Universe (Berry, 1999).

But it was in this study of the classical traditions of the East that Berry developed a deep understanding of the inseparable nature of reality found in religions such as Hinduism, Buddhism, Taoism and Confucianism. A simple story from the Hindu tradition succinctly illustrates the nature of such non-dualistic

reality in which "the object is not set over against the subject; the knower and the known are one," (Happold, 1963, p. 105):

"Put this salt into water, see me tomorrow morning," said Uddalaka.

Shwetaketu did as he was told.

Uddalka said: "Bring me the salt you put into the water last night."

Shewataketu looked, but could not find it. The salt had dissolved.

Uddalaka ask his son how the top of the water tasted.

Shwetaketu said: "It is salt."

Uddalaka said: "Throw away the water. Come to me."

Shewetaketu did as he was told and said: "The salt will always remain in the water."

Uddalaka said: "My Son! Though you do not find that Being in the world, He is there. That Being is the seed; all else but His expression. He is truth. He is self. Shwetaketu! You are That…" (From the Chlandogya-Unpanished, as cited in Happold, 1963, p. 147).

In addition, in Berry's exploration of Eastern religions, he found a strong connection between human identities and those of other beings, a connection that fostered the attitude that compassion and sensitivity must be extended to all forms of life. Threads of his *Communion of Subjects* orientation appear in the following traditions, briefly described below:

Hinduism

In Hindu thought, the whole is always greater than the sum of its parts. The galaxies, the planets, the Earth, and all of its inhabitants are considered to be part of

the interdependent web that connects the whole of life (Hathaway & Boff, 2009, p. 33). This train of thought, along with the subjective nature of non-dualistic consciousness, is reflected in Berry's own philosophy, where each subject of the Earth is an integral part of the communal whole.

From Hinduism, Berry draws upon the ancient accumulated wisdom of hundreds of generations of those who had devoted their lives to observing the workings of the body, spirit and soul from the inside out (Selby, 2003) to reveal "the unity of the deepest self of the universe, the *Atman*, with the inner self of the human… (Berry, 1999, p. 185). Hinduism asserts that the conscious self, the phenomenal self, or the *ego* is not the true self because it is bound up with physical and mental experiences that are subject to change. The true Self, the identity which does not change, is the *Atman*—the inner self of the individual, which also has a universal quality of divinity. Expressed in the phrase "Thou art That" the personal self of the *Atman* finds its identity in the Great Self of the universe, and it is not bound by space or time or consciousness.

Buddhism

In Buddhist thought, the challenge of the mind is to open one's personal awareness to the full reality of life, just as it exists in the present. The challenge of the heart is to develop one's ability to feel compassion and acceptance towards all of creation. Berry's teachings reflect both pillars; namely, to participate fully in the mysteries of life and to expand one's consciousness towards compassionate care for all "subjects" that inhabit the community of the Earth.

From the Buddhist tradition, Berry draws upon the enlightenment experience of Siddhartha Guatama, who while sitting under a Boddhi tree, in a flash of mystic realization, was "awakened" to the primal truths of human existence. As a result of looking into the inner depths of the conditioned and unconscious modes of his own mind, Guatama, known later as Buddha, became attuned to the ways in which the human mind might be guided toward a spiritual and psychological revelation of its true nature (Selby, 2003). Buddha's Four Noble Truths emphasize that life's sufferings are unavoidable; that we inflict suffering on ourselves when we crave a different reality than the one we are in; that we have the capacity to fully experience the present reality; and that we can let go of our ego identity and allow ourselves to enter into a new state of consciousness (Selby, pp.79-80).

Taoism

Taoists believe that nature should never be exploited or used, that the inner life must always be integrated with outer experience, and that the community's most important responsibility is to support the diversity of life (Hathaway & Boff, 2009; Selby, 2003). Taoism teaches that true wisdom lies in living in a simple, non-accumulative manner; in renouncing all types of domination; and in harmonizing one's day-to-day life with the wisdom of the universe.

From Taoism, Berry reflects on the Tao, "the dynamic force imminent in the universe which gives order and life and meaning to all reality..." (Tucker, citing Berry, 2006, p. 158) and "the mysterious manner in which it [brings about] the succession of changes in the universal order of things" (p. 158). The Taoist philosophy reflects aspects of his *Cosmogenetic* and *Holographic* lenses.

Confucianism

The key concept of Confucianism is that of undivided "unity with the 'One Body' of all the components of the universe, 'the ten thousand things'"(Berry, 1999, p. 185). Of the above Asian traditions, Confucianism is perhaps the most significant to Berry's *Communion of Subjects* orientation because it emphasizes an interconnected triad of cosmological dynamics between the cosmos, the planet, and the person. Although Berry is troubled that the environmental practices of countries guided by Confucianism are far from ideal, he believes that the ideals of Confucianism contain the important foundations for environmental ethics: namely, Confucianism encourages the human, as a microcosm of both the Earth and the Universe, to exist in harmony with nature, to improve oneself through education, and to commit oneself to positively transforming the social and political order. About this, Berry states:

> According to Confucian teaching, a mutual attraction of things for each other functions at all levels of reality as the interior binding force of the cosmic, social and personal life. More than most traditions, Confucianism [sees] the interplay of cosmic forces as a single set of intercommunicating and mutually compenetrating realities. These forces, whether living or non-living, [are] so present to each other that they could be adequately seen and understood only within this larger complex…Because of the intensity with which the[y] …experienced this interior, feeling communion with the real, they set themselves on…increasing the sympathetic presence of things to each other within a personal and social discipline rather than by intellectual

analysis and understanding. Indeed the Confucian ideal of knowledge [is] that of an understanding heart rather than a thinking brain (Tucker, citing Berry, 2003, pp. 1-2 www.thomasberry.org)).

Inclusion of all

In his *Communion of Subjects* orientation, Berry embraces the diversity of thought evidenced in his phenomenological studies of all of the Asian religions, and he speaks of a need for a Western worldview that incorporates the mystical, spiritual and moral resources of each of these classical traditions, as well as those of Indigenous peoples worldwide:

> Diversity is no longer something that we tolerate. It is something that we esteem as a necessary condition for a livable universe, as the source of Earth's highest perfection…To demand an undifferentiated unity would bring human thought and history itself to an end. (Tucker, p. 6, citing Berry, 1968, pp. 45-46 www.thomasberry.org).

The Third Non-Dualistic Facet: The Contemplative Space

Cosmological educator, Judy Cannato, (2006, 2010) and biologist and historical theologian, Mary Conrow Coehlo (2002) with support from other scientists and scholars make a case that contemplation, as the way of *seeing* practiced and advocated by Berry, is the way by which we must begin looking at the world in order to understand his *New Story*. They describe the practice of contemplation as an orientation towards life itself. It is an opening of awareness that transcends daily life by allowing one to still the analytical mind, stand back and take "a long, loving look at the real" (Connato, 2010, p. 173) in order to see more

clearly what *is,* and if practiced over an extended period of time, has the potential to instill the awareness that one is not separate from the world, but is an integral part of it. Other scholars contribute to a holistic understanding of the underlying components of contemplation in action woven throughout Berry's call for transition into a *New Story* in which *Communion of Subjects* is the theme.

Franciscan founder of the *Centre for Action and Contemplation*, Richard Rohr (2009) calls contemplation a means by which one keeps the spaces in one's heart and mind open long enough for the mind to see other hidden material. He states: "You cannot be contemplative when you are pushing or pulling, manipulating or resisting, attacking or defending" (p. 106). He describes contemplative knowledge as "full-access knowing"—not irrational, but prerational, nonrational, rational, and transrational, all at once. Educators Parker Palmer and Arthur Zajonc (2010) describe it as authentic, compassionate knowing that reflects the rich interconnectiveness of all reality. Quantum physicist, David Bohm (1996) describes it as a movement between experience and knowledge that involves an intuitive, subjective type of knowing—a *being with*—reality, an unbroken wholeness, an inseparable process. Yale philosopher and phenomenologist, Louis Dupres (1989) describes it as an experience "where knower and known are substantially united [without] any distance for subject-object opposition" (pp. 10-11, as cited in Coehlo, 2002, p. 83).

In the practice of contemplation, one maintains a pure openness to the present that does not divide the moment, but allows it to be what it is. Through contemplation, it is possible to hold the conflicts of life in the present instead of

projecting them elsewhere (Zajonc, 2009). The contemplative state also allows one to confront the fears that keep one tied to false securities and prevent one from fully experiencing real life. Through the sustained practice of contemplation, one has the potential to learn that he or she is not his or her thoughts, or feelings, or experiences, or beliefs, or judgments; rather, there is the possibility that one will come to understand that each individual is a much deeper mystery. If one is able to detach from the tendencies to analyze or categorize or objectify, and one begins to integrate contemplative experiences into his or her understanding of the world, one has the potential to discover that all life has intrinsic value, and to witness the flow of creation from a new stance of awareness. The contemplative path creates "an opening to original and creative insight, without any fixed limits or barriers, such that our overall worldview ceases to be rigid, fragmentation ends, and our life comes into harmony" (Bohm, 1983, p. 25, as cited in Coehlo, 2002, p. 352). It cleanses the doors of one's perception (Bai, 2009, referencing William Blake); and it has the potential to invoke compassion, to allow for non-dualistic thought, and to inspire a radical change in the way one lives one's life (Finley, 2002; Selby, 2000; Rohr, 2009; Zajonc, 2009).

The contemplative journey, which is actually an exposure to nondualistic knowing (*advaita,* in Sanskrit), involves setting aside the definitive knowledge of how the world is or should be in order to become receptive to a new way of perceiving reality (Bohm, 1983, as cited in Coehlo, 2002; Coehlo, 2002; Rohr, 2009; Zajonc, 2009). The person who engages in regular contemplative practice "seek[s] a

unitive vision of the richness and depth and intrinsic worth of the whole and of the parts within the whole" (Coehlo, 2002, p. 12).

Contemplation and Evolving Complexity

Coehlo makes integral connections between an awakened contemplative way of being and the Cosmogenetic perspective Berry's *New Story*: "By meditative and contemplative practices, the 'common sense' view of everyday life is profoundly informed, and gradually even transformed; as we see freshly, we may begin to enter the way of seeing offered us by the new story" (Coehlo, 2002, p. 337). To understand this statement, one must begin by recognizing the type of *knowing* that develops as one begins to perceive that he or she integrally belongs to a "dynamic cosmos that creates beings of varying complexity with subjective depth" (p. 10). Coehlo explains:

> It is a knowing distinct from our sensory knowledge and from the subject-object mode of rational knowledge. For the individual, these direct perceptions are a vital way of participating in the unfolding Earth. Unfortunately, such modes of knowing have largely been discredited in recent centuries, because they cannot be tested by experimental methods using controls. Trained by the assumptions and preferences of Western culture to focus almost exclusively on the explicate order, we screen out and suppress vast dimensions of our own implicated nature. The great psychological and spiritual cost of this has been noted by a number of writers. However, we now realize that such alternate forms of knowing are possible because we understand that the creative ordering and formative processes

> and symmetries integral to the world manifest themselves not only in physical structures, but also in the internal structures of the mind (p. 348).

In other words, the human brain is already structured for contemplative knowing, a concept that currently being explored in the field of social neuro-science (Conzolino, 2013; Siegel, 2011, 2012; Zajonc, 2009). Once one becomes practiced in "letting go" of fixed ideas and assumptions, there is the possibility that a gradual change in one's perception of reality will take place, and if that happens, there exists the possibility that one will come to know subjectively that he or she as an individual is an integrated part of a totality of the universe. This type of participatory, alternative knowing can move one to "a profound awareness of [one's] belonging to the unfolding whole and perhaps, in the process, to identify [one's] personal calling as [a] participant in the ongoing story" (Coehlo, 2002, p. 349). As one embraces this cosmic perspective, one develops the potential capacity for developing mutually enhancing relationships with the other-than-human inhabitants of the Earth (Berry, 1988). One also becomes more able "to hold steady,…to employ [one's] capacities to the fullest in ways that facilitate the evolution of all life,…[and] to respond from a place that is free" (Connato, 2010, p. 157) from the fear to go beyond oneself, to bypass the static categories of the Western worldview, to be attentive to the intricate connectedness of all living beings, and to envision a creative, other-centered perspective.

Thomas Berry writes: "The sense of communion at the heart of reality is the central force bringing the ecological age into existence" (1988, p. 121). Connato makes the point that as a greater number of people begin developing this sense of

communion, as they begin to see the world from a stance of connectedness, as they enter freely into the flow of emergence, and as they begin living out of the ethical, moral and compassionate depth of a cosmic worldview, they will contribute to the consciousness of the whole. "As it is lived on a larger scale, this level of consciousness shifts the center of gravity upward, pressuring the whole of our species to evolve" (Connato, 2010, p. 156) in greater complexity.

Contemplation and Multi-Dimensional Reality

The contemplative journey is integral to the multi-dimensional holographic lens of the *New Story*, as well. Contemplatives and mystics in Eastern, Aboriginal and Western spiritualities have talked for centuries about the *No-thing-ness*, the *Great Spirit*, the emptiness, and the *sunyata*—terms that describe the ongoing creative source of all that exists; but for the first time in history, physicists are agreeing that the actual state of the entire universe is one of unbroken wholeness—a profound mystery—a realm of generative possibility—that cannot be studied by the usual measurements of science (Bohm, 1983, pp. 134-135, 176, as cited in Coehlo, 2002, p. 154). This radical scientific discovery leads to the recognition that "[t]he manifest daily world of things and living beings in their inner dimension are directly open to and are part of the nonvisible depth of things" (Coehlo, 2002, p. 154). But the mysteries of this ultimate reality are not accessible through rational, empirical means of inquiry; rather, they are a result of insights and illuminations that have given scientists glimpses of the realization that the matter-mind-spirit dimension of each differentiated part (what Berry calls each *subject*) exists in relationship with each other part within the multi-dimensional whole (what Berry calls a *Communion*

of Subjects). Coehlo (2002) and Connato (2006, 2010) believe that contemplative practice is necessary for such a realization to occur, and for a shift in consciousness such as Berry advocates to take place. Connato (2006) explains:

> Living in freedom requires that we recognize the connectedness that is a basic reality of our existence—freedom is an act of going out of the self, going beyond all fixed categories, becoming part of a greater whole, with greater meaning and greater significance than we can experience alone—the freer we become, the more attentive we can be to the quality of our connections, aware of how our spirit touches all the parts of our lives, aware of how our spirit touches all others (pp. 101-102).

Contemplation and a Collective Shift in Consciousness

Recent anthologies entitled *Thomas Berry, Dreamer of the Earth*, (Laszlo & Combs, editors, 2011) and *Spiritual Ecology: The Cry of the Earth*, (Vaughen-Lee, editor, 2013) contain essays written by dozens of scientists, Aboriginal leaders, philosophers, psychologists and Eastern and Western religious leaders who agree that in this time of confusion and paradox, uncertainty and unpredictability, we are in the midst of a communal shift of consciousness in not just the Western world, but all over the Earth. They predict that this critical period of creative tension on the planet is a sign of collective awakening to the sounding "bells of mindfulness," (Thich Nhat Hahn, in Vaughen-Lee, 2013, p. 25). Like Berry, they believe that the Earth is mandating a new mode of human presence in which humans will come to recognize their integral connectedness to the Earth—in preparation for the

evolutionary movement forward as a human species—into what Berry calls the *Ecozic* era.

Theological scholar, Ewert Cousins, calls the communal movement towards a change in consciousness that is occurring simultaneously throughout the Earth *The Second Axial Shift in Consciousness* (the first was influenced by the move away from tribal consciousness towards historical consciousness resulting from the preservation of the written word). He believes this movement is bringing about "an unprecedented complexification of consciousness…" (Cousins, 1992, pp. 7-10, as cited in Coehlo, 2002, p. 377) that is forging connections throughout the planet.

If the assumption that a collective shift in consciousness is occurring throughout the world is correct, one of the indicators is "a renaissance of the contemplative mind" (Rohr, 2009, p. 114), which is taking place in the Western world. In the past few decades, there has been a resurgence of contemplative practices, many of which draw on ancient traditions, such as yoga, breathing meditations, labyrinth walks, centering prayer, mandala drawing, mindfulness meditations, sitting meditations, guided visualizations, and walking meditations. All of these practices require a suspension of thoughts and judgments, focused attention to the phenomenological experience of the present moment, and a quieting of the rational mind (Finley, 2002; Selby, 2000; Zajonc, 2009).

The contemplative space is becoming the place where quantum science and spirituality are finding common ground, as evidenced by recent dialogues centered on *The New Physics and Cosmology: Dialogues with the Dalai Lama* (1997, 2002, 2003, as cited in Zajonc, 2009) moderated by physicist and contemplative Arthur

Zajonc, the president of the Mind and Life Institute, and the past director for the Center for Contemplative Mind in Society. It is also the space where Indigenous science is meeting quantum theory and Eastern spirituality, as evidenced by shared emphasis on the primacy of *unmanifest reality* in Native science and linguistics (Kawagley, 1995; Parry, 2006; Meyer, 2013), the *implicate order* in quantum physics, (Bohm, 1996; Coehlo, 2002) and the *deep realms of consciousness* in Eastern traditions (Dalton, 2009; Selby, 2000). In addition, it is the space where process learning is meeting art and nature and poetry in the interconnected wholes of contemplative pedagogy (Bai, 2009; Lipsett, 2001; Zajonc, 2009).

In light of these radical thoughts, it is apparent why the contemplative journey is integral to the understanding of the *Non-dualistic Lens* of Berry's *New Story,* and to the realization that the Earth is a *Communion of Subjects* and not a *Collection of Objects*. It also seems apparent that such a comprehension is not attainable without the sustained personal practice of contemplative methods in one's own life.

Berry's Non-Dualistic Answer: A Summary

From the perspective of the *Non-Dualistic* lens, then, what is the answer to the question: *What does Thomas Berry mean when he says that humans must undergo a radical shift in consciousness in order that they might come to the realization that the Earth is a communion of subjects and not a collection of objects?*

Briefly, in summary, Berry's *Non-Dualistic* answer is not so much an explanation as it is his advocacy for shifting to a holistic way of viewing reality. It is Berry's nature to see in wholes, and it is difficult for him to function in the

fragmented Western world, not only because he rejects its mechanistic worldview, but also because he suffers deeply in compassionate concern for human and other-than-human members of the Earth community who have been objectified by those in power. For Berry, the development of a non-dualistic seeing provides ways for coping with and counter-acting Western alienation, isolation and suffering, and of envisioning a more hopeful future for the Earth's children in future generations.

Personal Connections to Non-dualistic Inseparability: An Emerging New Lens—The Human Mind?

In response to Berry's challenge to shift to a holistic way of seeing the world, I found the daily contemplative practice associated with the lived experience of my research a natural fit. Not only did it still my rational mind, it allowed me to absorb the incredible moments when I felt glimpses of communion with all of creation. These moments have given me the capacity to relate to Thomas Berry's childhood experience in the field of daisies, and I can now understand what he means when he says we must listen to our dreams and pay attention to our visions. I am now more able to trust my instincts and intuitions, and I am allowing my heart to guide my actions in my everyday life. My experience has convinced me that contemplative pedagogy is an essential element for education of the future, especially in terms of developing compassionate responses to social and ecological injustices in the world.

Because of this conviction, and because of the benefits recognized in my own sustained contemplative practice, I undertook further investigations into contemplative educational practices. In the course of looking for academic sources that might support and advocate for contemplative pedagogy, I stumbled upon

recent research that connects contemplative practice with the integrative functions of the human brain. The research that parallels Berry's *Communion of Subjects* orientation is that of interpersonal neurobiologist, Daniel Siegel (2011, 2012), and although Berry's work is of a more spiritual nature, Siegel's research into the integrative features of the mind reflects many of Berry's insights about organic and subjective processes. I might even suggest that had Berry lived another five years, he would have integrated another perspective into his *Communion of Subjects* philosophy, that of the human mind. As I have conducted preliminary investigations into the brain and its relationship to learning, I am amazed at the following synchronicities that exist between the work of Siegel and Berry:

First, Siegel (2012) explains the function of the mind in much of the same way Berry explains the *Subjectivity* of the Self:

THE MIND *is*

EMBODIED (THROUGHOUT WHOLE BODY)

and is a

RELATIONAL

and

SELF-ORGANIZING (AND ADAPTIVE)

and

EMERGENT (FROM RELATIONSHIPS AND EMBODIED EXPERIENCES)

PROCESS

Figure 7. Synopsis of Siegel's (2012) Mind as Process

Key to the above concept of mind is the definition of *self,* which to many modern Westerners tends to be perceived as an entity that is separate from other selves and disconnected from the Earth. For purposes of developing the mind, Siegel (2012) asserts that the concept of *self* must be understood as an embodied, relational, self-organizing emergent form that is capable of organizing itself independently, but is also an interdependent part of a greater whole.

Secondly, Siegel (2012) talks about *integration* as the primary function of the mind. The mind connects the parts of the brain with the nervous system and all of the organs of the body (which collectively Siegel calls the embodied brain), and regulates the exchange of inner and outer energies of the outside world (which Siegel calls relationship).

Siegel (2012) explains that when the mind integrates all of these parts together, it becomes possible to prepare individuals for intentionally changing one's worldview through experience and relationship. In other words, it is possible to train the human mind to cooperate, collaborate, and make integrative connections, rather than to view the human as a separate from the rest of the natural world. Siegel's explanation of this triadic exchange of energy validates Berry's conviction that the human cannot exist in isolation from the Earth community, and it substantiates Berry's argument that it is possible to shift one's consciousness towards a *Communion of Subjects* relationship with human and other than human inhabitants of the Earth.

A simplistic synopsis of Siegel 's (2012) explanation of the integrative functions of the human mind is mapped on the following page.

MIND

Consciousness, awareness, subjective experience

Regulates, Integrates, Right and Left Side and Triune parts

Cannot be reduced –everyone knows what it is but no one knows what it *is*

Self organizational-loops back and influences culture, relationship, and experiences

Reflective awareness

Social organ of the body

Centre of Balance

|

Electro-chemical energy connections

movement of energy

flow of information

Synaptic circuitry

Neurons fire together, wire together

/ \

RELATIONSHIP	**BRAIN**
Exchange of energy flow	Throughout whole body
Symbolic meanings create sense of belonging	Patterns of behavior
Shared energy patterns	Shaped by cultural
Experience of "we are all in this together"	experiences
Building relational connections	Mirror neuron resonance

Figure 8. Map of Energy Triad in Siegel's (2012) Integrative Function of the Mind

A third similarity between Siegel and Berry is that Siegel (2011, 2012) uses the terms *differentiation*, *subjective experience*, and *communal linking* to describe the three major processes of the human brain. Siegel suggests that when one honors differences between oneself and others, and when one is interested in another's inner life—his or her thoughts, feelings and emotions—his or her subjective experience—this interest allows one to be fully attuned to the other, and it allows for the optimal transmission of energy and information to pass through one's own body, to communicate and take in energy and information in exchanges with others, and to envision one's place in the life community of the Earth.

When one looks at Berry's four perspectives from the lens of the mind, some striking similarities stand out. In terms of *Cosmogenesis,* the human brain has evolved in three parts: the *reptilian*, which evolved 300 million years ago; the *paleomammalian*, which evolved 200 million years ago; and the *neomammalian*, which evolved 40,000 years ago. Each of these sections contains its own subjectivity, memory, sense of time and space, and intelligence. When integrated as a unit, they function as a whole that is greater than the sum of its parts (Coehlo, 2002, p. 41, citing McLean, 1990). Despite the emphasis on rational left-brain development in the last several hundred years, psychiatrist, Iain McGilchrist proposes that the potential still exists for the mind to return to a state of interconnected consciousness (McGilchrist, cited in Stanley & Loy, in Vaughen-Lee, 2013, pp. 38-39). This supports Berry's belief that a shift of consciousness is possible. In addition, children's advocate Richard Louv (2008) in his work with Nature-Deficit disorder, makes a strong case that all infants are born with a brain that is

instinctively and inseparably connected to Nature, and children's genetic hard-wiring is designed to develop according to direct participation with the natural world. Louv's work supports Berry's assertion that a shift towards developing a participatory consciousness is critical in this age when Western children are often disconnected from Nature.

From a *Holographic* perspective, social neuroscientists now know that the modern brain functions at its optimum when it is connecting to the whole of reality. The human brain is designed to make inner, outer, and non-local connections; to forge complementary, symbiotic, collaborative relationships; and to spontaneously deal with paradox, uncertainty, and possibility. These are interpersonal functions that cannot be outsourced or performed by technology; and educators, scholars, and business people such as Louis Conzolino (2013), Howard Gardner (2009), Daniel Pink (2006), and Sir Ken Robinson (2009), to name a few, are recognizing the importance of developing the creative, imaginary, intuitive, relational and communicative abilities of the mind.

From an *Inscendent* perspective, the human mind is an embodied mind, and it is unconsciously connected to the gut, the heart, the instinctive fight-flight-freeze impulses, and the emotions. It is also unconsciously connected to the invisible energies that exist outside of the body. The implications of these connections suggest that without even consciously realizing it, humans are constantly being guided by their dreams, imaginations, instincts, and inner intuitions; and at the same time, they are connecting (or blocking their) energy with the energy of others.

From a *Non-Dualistic* perspective, social neuroscientists now know that outwardly, whenever one human mind is able to make compassionate connections to another, a slight change occurs in the structure of the brain that increases the mind's capacity to forge empathic relationships. Such slight changes build upon each other to make permanent changes in the structure of the brain. In addition, contemplative practice is optimum for developing the functional capacity to experience reality in wholes, for honing the ability to walk in solidarity with other beings, and for drawing together collective energies in collaborative endeavors.

Interestingly, it seems that the human brain is genetically wired to function as a *Communion of Subjects* instrument designed for connection and compassion. The area of neuroscience as it connects to the four lenses of Berry's orientation and to the processes of education is a study that fascinates me, and is one that I hope to continue in the future. I believe there is much potential for future research that is designed to study the connections between the brain, Nature and process-relational pedagogy. It is my hope to apply the learning of this inquiry to the future development of educational processes and practices that foster such integrations.

Conclusion to the Theoretical Representation

The study of the lenses of Berry's worldview has functioned as a personal global positioning system by which to expand my comprehension of his call for connection to the Earth. Integral to this theoretical research has been my concurrent experiential immersion into the mysteries of the natural world and their connection to the processes deep within my inner being. The amalgamation of

theory and lived experiences has provided integrated perceptions of the Earth as a *Communion of Subjects* that are inseparably woven into my personhood.

Such perceptions are explored in the artistic representations of the inquiry. The next chapter contains an explanation of the non-verbal, symbolic representation of my journey of learning—that of a hand-knitted mandala shawl—which symbolically maps the organic, process-oriented, concentric and inseparable nature of the inquiry as a whole, and represents the integration of Berry's wisdom into my own philosophy and my own story. From this point on, the words "perceptions of inseparability" in the title take on a very personal meaning. My perceptions are no longer Berry's understandings; rather, they are my own understandings, and they are inseparably connected to my unique way of being in the world.

CHAPTER EIGHT

THE INTEGRATION OF MY STORY WITHIN THE GREATER STORY—THE MANDALA SHAWL—AN ARTISTIC METAPHOR OF THE JOURNEY

Introduction

As an educator who believes that knowledge cannot be captured or articulated exclusively with words, I am an advocate of recognizing multiple ways of knowing, learning, and expressing what one understands. For that reason, in addition to the textual theoretical perspectives of the last chapter, and to the written stories of the next, I have chosen to represent the heuristic discoveries of my research in a non-verbal, artistic form—that of a hand-knitted mandala shawl (See photos, Appendix C).

The symbol of the mandala is an ancient one that has appeared in every culture on the Earth throughout time, and there are as many different types of mandalas as there have been societies on the Earth. The mandala represents an *Archetype of Wholeness* (Barreda, 2011, www.mandalazone.com) that encompasses the interconnected journey of self within the journey of the universe. The circumference of the mandala is shaped as an unending circle that symbolizes a mysterious, indivisible unity of connections and relations that consciously and subconsciously link all members of the universe together as one. The underlying message of the mandala is one of compassion, for it is in compassionate understanding that separateness dissolves. The mandala is a visual reminder that each living subject has ancient, inseparable connections to the energies of the Earth, and as integral members of the Earth community, each of us has a responsibility to

connect to the other subjects, and to actively care for the future well-being of the planet we call home.

The Story of the Mandala Shawl

From the vtaery beginning of the research process, I became interested in the metaphorical significance of the mandala, and I began encountering images of mandalas in many areas of my inquiry—in Berry's writings, in Hildegarde von Bingen's artistic creations, in Cajete's representation of Indigenous ways of knowing, in the symbols of Eastern classical traditions, in Jung's explanation of self, in man-made creations of meditative labryinths, and in natural creations of the Earth-in spider webs, the trunks of trees, and the centres of flowers. During contemplative times, when I reflected on the integration of various aspects of the research, I often found myself drawing or coloring mandalas, and a couple of times, I even dreamt about them. At one point, about two years into my study, I began making connections between my personal journey and the interrelated nature of Berry's cosmology and educational mandate, and I am not sure how it happened, but I was inspired to begin designing a pattern that I could use to create a knitted mandala shawl to represent the connections I had made. As the pattern evolved, it became a metaphorical representation of each lens of my research journey and at the same time, a representation of the inseparable layers of theory and lived experience of the Heuristic Self-Search Inquiry as a whole.

In addition, the mandala project became a deeply meaningful ongoing personal meditation of hope. As I was knitting the shawl, I purposely directed my spiritual intentions towards the nurturing of connection and compassion, and

towards the healing of hatred and indifference in the world. The interwoven stiches of the shawl represent for me a visible amalgamation of inner and outer energies that are infused with my hopes for a more sustainable and just future for the Earth.

Mandalic Connections to the Theoretical Lenses

From the perspective of the *Cosmogenetic Lens*, the knitted mandala represents a journey of expansion and increasing complexity. When I started knitting it, I began at the center with one stitch, and because of the fragility of the yarn, conditions had to be "just right" in order for the process to continue. Once the initial stiches were in place, I was able to expand the work in an ever-increasing number of stitches, each of which became essential to the others. As the mandala grew from the inside out, it became necessary to make adaptations that evolved in complexity. As the individual interwoven patterns took shape as wholes unto themselves, they eventually gave way to concentric circles that marked transitional spaces between the circular designs, and new patterns of stitches began to take form. At times, the mathematical sequences of the patterns became skewed, and as a result, it was necessary to rework large sections of the shawl. During the times when I had to unravel sections that had taken hours and hours to knit, I joked that there had been five major extinctions on the Earth, and perhaps there would be five major extinctions of the shawl; coincidentally, that is exactly what happened.

Eventually, as the shawl became large enough to become functional on its own, I chose to finish it with a unique style of border which is symbolic of both the relatively recent emergence of the human, and the influence of the noospheric layer of human consciousness on the processes of the planet. As a symbolic

representation, this "human" border is the only section of the shawl that introduces a different kind of stitch; it is the only section that separates the stiches from the rest of the shawl; it is the only section that uses a linear knitting needle rather than a circular needle, and it is the only section that doubles back to the source and "reconnects" the separated stitches to the primordial body of the shawl.

As a result of this reconnection, the potential still exists for the shawl to continue to organically expand and change in unknown and interwoven patterns that connect past endeavors with those of the present and the future.

From the perspective of the *Holographic* lens, the concentric expansion of the mandala is based on the scientific formula of the symbol Pi, which actually represents the expression of every number in the Universe. The knitted mandala has taken explicate form (the shawl) out of an implicate order (the pattern). The creation of the mandala has been an inseparable, three-dimensional process that involves the rational (mathematical calculating process), the physical (kinesthetic knitting process), and the spiritual (unseen reflective process) perspectives of reality. The nature of the act of creating the shawl has involved uncertainty, spontaneity, potentiality, non-local interconnection, transformation, and the risk of chaos (because if even one stitch were to drop, the entire shawl could unravel). In addition, each concentric section has become a whole unto itself that has an established independent pattern, but at the same time, cannot exist without an interdependent relationship to the rest of the shawl.

From the perspective of the *Inscendent* lens, the mandala represents the archetypal significance of ancient processes and energies that have inspired and

continue to inspire people from many ages and cultures to reflect symbolically upon their life journeys. I have come to believe that there is a mysterious connection between these unconscious ancient instincts and my own intuitions; I have no idea where the idea to design a mandala came from other than it persisted until I finally decided to act upon it. As a result of searching for the symbolic meaning of the mandala during my research process, I have come to the understanding that the mandala represents a spiritual journey of self, an interconnected reality of inseparable oneness, a symbol of compassion, and a means of contemplative practice. These synchronistic connections with my inquiry seem to be more than just coincidences, and, although I still do not understand them, I have come to perceive them as inscendent sources of energy that have guided me in my journey.

From the perspective of the *Non-Dualistic Lens,* both the pattern and the yarn used to create the shawl represent aspects of non-dualistic balance. In the pattern, it is the combination of interconnected stitches and empty spaces that give the unique configurations their complexity; interestingly, in order to create an empty space, one must knit two stitches together. As for the yarn, the wool used to create the shawl also has non-dualistic characteristics. As a very fine, natural merino, it cannot be reduced into separate strands; and it cannot be separated from the whole skein of yarn. In addition, it is characterized by "both/and" properties: it is both fragile and resilient; it has the ability to keep one both warm and cool; and it is both practical and beautiful. In regards to both the pattern and the yarn, the creation of a mandala is a non-dualistic process. It involves an ever-expanding organic vision that defies analysis, fragmentation, reduction, or even predictable outcomes. This vision

unfolded as I was working on the shawl, and the practice of knitting became a peaceful meditation that allowed me to clear my mind of incessant thoughts so that I might enter a balanced, contemplative space.

Connection to the Lived Experiences of the Inquiry

During the months that I spent knitting the mandala shawl, I had an opportunity to sort through many of the lived experiences of the inquiry, and I was able to experiment with individual concentric patterns that symbolized some of the connections I had made. I began by knitting a section in which it was difficult to discern any pattern at all, and this for me, symbolized the beginning of the research process when I was searching for a methodology and stubbornly refusing to give up just because I did not have a clear map of where the inquiry might take me (see image below):

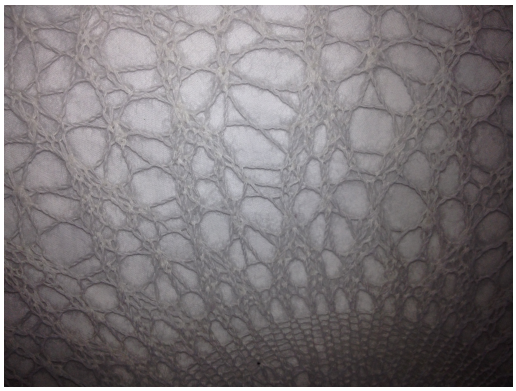

Figure 9. Mandala Pattern One

The second section, which, depending upon how one looks at it, appears at times as a circular movement of the galaxies as they swirl in creativity, and at other times as a sweeping movement of the wind as it bristles through the trees, symbolizes for me the understanding that the Earth is constantly presenting us with

opportunities to become awed by its mysteries and to participate in its creative processes with the other-than-human and human members of the natural world (see image below):

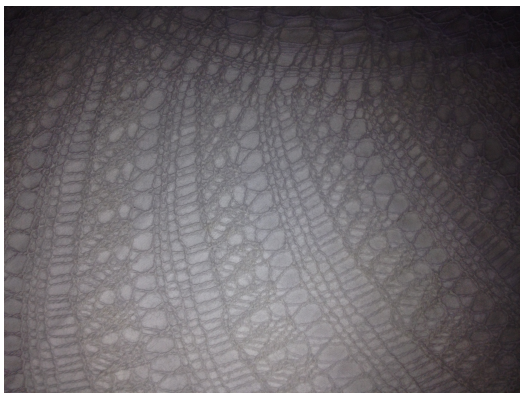

Figure 10: Mandala Pattern Two

The third section, which to some appears as an inner form surrounded by outer patterns, and to others appears as a set of external patterns that contain an inner coherence, symbolizes for me the connections between my dreams, my imagination, and my external reality; between my inner intuitions, synchronous connections, and reciprocal communications with the members of the human and the other-than-human world, and between my own ancestral story and the story of the unfolding Earth (see image below).

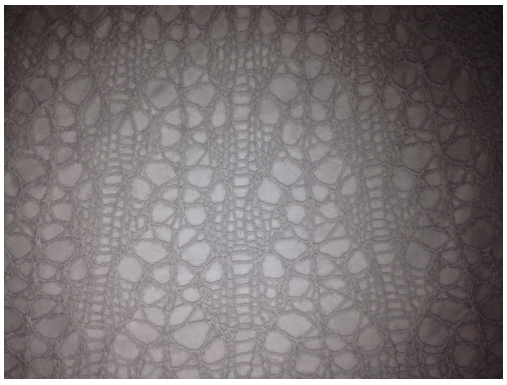

Figure 11. Mandala Pattern Three

The fourth section, which is the one I had the most trouble establishing as a balanced mixture of inseparable connections and empty spaces, ultimately became my favorite pattern because it is the one which symbolizes the non-dualistic lifestyle of contemplation and action, an aspect of the inquiry process that I hope will stay with me for the rest of my life (see image below):

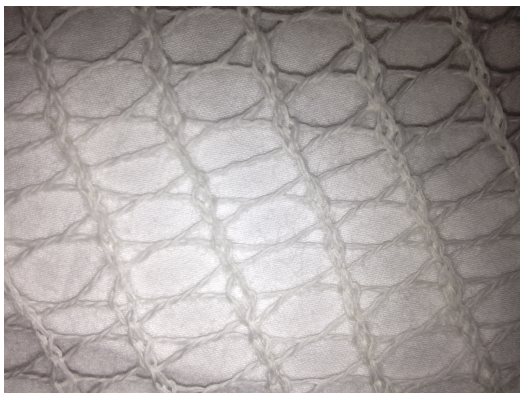

Figure 12: Mandala Pattern Four

Now, whenever I look at the completed mandala shawl, I reflect upon my personal journey of learning, and although I know that only I understand the detailed significance of each of the concentric circles, the mandala as a whole represents the amalgamation of scholastic endeavor and lived adventure of the past five years. The process of knitting the shawl has helped me to connect the perspectives of theoretical study and the stories of lived experience into the journey as a whole, so much so, that metaphorically, it is inseparably "woven" into my personhood, as a woman, an educator, and a citizen of the Earth. I have come to the place in my journey in which the integrations of theory and participation are aptly named "perceptions of inseparability".

Interestingly, it was not until I had completed the mandala shawl that I decided upon the title of this dissertation. At first, I had settled on the phrase "Perspectives of Inseparability," but upon further reflection, I thought of David Abram's (2010) explanation of *perception* as an organic way of knowing that becomes part of oneself, and I realized that the word *perspective* was too closely linked to one part of the study, that of the theoretical lenses. My inquiry had become much more than any of its parts; it had become "*Perceptions of Inseparability*" in whole and in part. From that point onward, the layers of the study could no longer be separated.

Threads of Connection to Berry's Cosmology and Educational Mandate

The process of hand-knitting is a symbolic of an organic unfolding; in fact, no matter how precise one is at the art, a human knitter will never match the mechanistic patterns that a machine can accomplish. The knitting of the mandala shawl symbolizes the simultaneous integration of *differentiation* (my unique pattern and style of knitting—and—the mistakes that make it truly one of a kind), *subjectivity* (the inner organizational process that unfolds as each section transforms into the next—and—the adaptations that are necessary as mutations inevitably occur), and *communion* (the inter-connected, interdependent relationship between the individual stitches, the unique sections of pattern, and the unbroken thread of yarn woven throughout the entire shawl).

The creation of the shawl represents many ways of knowing—rational, spatial, kinesthetic, embodied, intuitive, introspective, and contemplative, but perhaps most importantly, it represents the intergenerational traditional knowledge

passed down to me by my grandmother. My mom's mother was the only grandparent I ever knew, and in the few weeks that I spent with her each year when I was a child, she taught me how to knit. Even though she died when I was only ten years old, I can still see an image of her with needles and wool in her hands. When I taught my oldest granddaughter how to knit, I shared with her the stories of my grandmother. My love of knitting has kept my grandmother's spirit alive for me, and hopefully, will keep it alive for my grandchildren.

Poetic Connection to the Mandala

The following poem, written by mandala artist, poet and essayist, Peter Patrick Barreda, speaks to me as I recognize in Barreda's words the impact that my heuristic response to Thomas Berry's call for connection has had on my personal perceptions of inseparability as they are represented in the creation of a mandala:

The Dream of the Cosmic Mandala

Nothingness swirls and flows about itself in an eternal night of its own creation

Where Emptiness and Non-Existence stand astride the cosmic void

To guard a treasured and eternal point of being,

Mystic and elaborate and dense with a beauty and potential

Beyond the scope of all logic and wonder,

Thick with form and pattern in a multi-folded universe of sweet anticipation

Where the broiling energies of deep essential being

Flux and flame and forge a quick ascending pressure,

Building past the pires within

To fast expand the bindu-soul

Beyond itself, beyond the night, beyond the reaches of the mind,

From Nothing into Something flows the outward-racing wind,

The force of potent being, bearing forth the searing wave of essence,

Forms a sphere of cosmic spirit in a vibrant, vast mandala

Full of breath and life and energy,

A light that burns and glows and spreads like flaming liquid through the night

To reach and touch the furthest edges of the known,

While eddies form and fix into a mealstrom of blazing jewels

That live and breathe and burst divine into the dark,

And rocks are born and bear in turn the fruits and flowers of every hue,

And beasts of every size and shape to fill the land and sea

And slowly eyes that open inward toward the burning flames within

To wonder and to seek the truths of ancient queries—

Marvel at the mysteries, create the uncreated—

To draw a mythic circle on the rocky, sandy ground,

And finally, at long, long last, the vast mandala looks within and sees itself

In the enigmatic mirror of consciousness. And realizes it is dreaming

The most beautiful dream in the universe.

March 17, 2006*;*

www.mandalazone.com

Conclusion

As I created the mandala shawl, I had the opportunity to reflect on experiences from the research process that might best express my efforts to connect my story with the greater story of evolutionary emergence. In Chapter Nine, the last chapter of this work, I have attempted to provide glimpses of insights that I received in the lived experiences of each stage of the research journey. The stories that follow constitute the second component of the artistic representation of my research inquiry.

CHAPTER NINE

GLIMPSES OF THE LIVED EXPERIENCES OF THE INQUIRY

WHEN THE STUDENT IS READY, THE TEACHER APPEARS (AN ANTHOLOGY)

Introduction

In the playbill of the 2014 premier production of *Operation Big Rock*, Saskatchewan playwright, Joel Bernbaum states, "There is something beautiful about the power, the energy of stories. How we feel this energy. How it passes through us. How we pass it on." It is with Bernbaum's enthusiasm for the capacity of stories to provide a vehicle by which we might pass on glimpses of the energies that have inspired us on our individual journeys that I have chosen to share the stories in this anthology.

The seven stories found in this chapter relate my real life experiences of connection and compassion as they occurred during the four and a half years of my research process. Many of them reveal snippets of synchronicities, chance happenings, stirrings of the spirit, intuitions, and dreams that occurred along the way. Some of them describe moments of intense beauty that caused me to pause and say, "Aha, this is what it is all about!" And some bring to mind moments of pain that caused me to stop and ponder, " Why is there such deep suffering on this Earth?"

Each of the first four stories describes the context by which I became aware of an other-than-human teacher who was right in front of me, or one who suddenly appeared to teach me a lesson that reflected the possibilities for the reciprocal exchange of mutually enhancing energies between other-than-human and human subjects of the Earth. The first story brings home a realization of the bonding that

developed between a very large old spruce tree and myself, which occurred while I was preparing my initial literature review in the first two years of my study. The second tells of a connection to a little bird that mirrored for me a clear insight into the direction I needed to take when I was searching for a methodology at the end of the second year of the process. The third narrates the events of a powerful conscious-shifting experience that motivated me to confront my fears of the natural world; and the fourth, which follows on its heels, recounts the details of a mysterious reciprocal communication with an other-than-human subject arising from a terrifying dream. Together, the third and fourth stories mark a turning in the research inquiry and a surprising shift in consciousness, which occurred eighteen months ago and has changed the way I have experienced the natural world ever since.

Stories five and six describe two opportunities for me to extend the learning of my inquiry into the human world following the pivotal shift of consciousness described in stories three and four. The fifth story, which tells of a chance meeting with a special lady, describes lessons that triggered reflections about the layered meaning of the phrase *Communion of Subjects* as I began to expand my shift of consciousness to recognize that honing one's participatory awareness of the natural world also involves becoming attuned to opportunities to connect with other humans. The sixth narrates details about events that caused me to put a hold on my research for several months, but paradoxically, provided me with the invaluable opportunity to fill in gaps of my own ancestral story from a great teacher, my dad.

The last and final story tells the story of the place of my greatest learning, the area surrounding the little cabin in the woods. That place is the constant in the overall story of the research process, and it is the place that serves to integrate the rest of the stories together. The details of this last story recount the connections that I began to make when I learned how to listen to the lessons of my heart and to act upon them.

Together, these seven stories map the holistic essence of the expansions that occurred in my own consciousness—expansions that resulted in *perceptions of inseparability* arising from connections to my inner energies, my outer relationships, and the amalgamation of the two.

I must admit that at the beginning of the research, I had envisioned the telling of an epic story that would describe a transformative change in lifestyle—one that would involve selling my house, living simply, refraining from travel or the use of a car, consuming only things that were justly produced, and openly challenging political authorities. Although each of the above remain personal goals, for now I am grateful for the shift that has not only given me the opportunity to hone a participatory consciousness with the other-than-human world, but has also provided me with the experience to become attuned to the mysterious, invisible, inscendent, and implicate energies that connect all of us, human and other-than-human, as a *Communion of Subjects* on the Earth. I am also thankful for the shift that has expanded my consciousness in a way that has allowed me to understand my story as it unfolds within the ever-emerging story of evolution.

Influenced by the work of an Educational Foundations faculty member at the University of Saskatchewan, Craig Campbell (2010), I have included a simple hand-drawn visual map of the place of Christopher Lake, and to the interwoven non-linear connection that exists between the seven stories below:

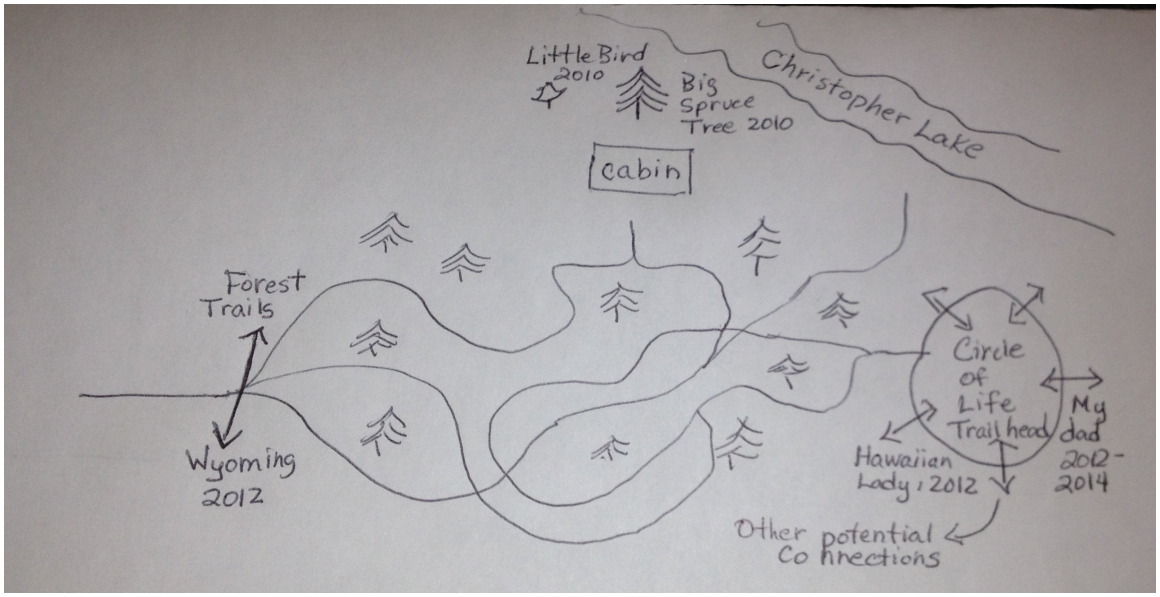

Figure 13 : Hand-drawn Map of Trails at Christopher Lake

I offer the following seven stories with the humble hope that some aspect of my exploratory journey will resonate with those who read them, and will encourage them to respond in their own ways towards making integral connections to the planet we call home.

The Other-Than-Human Teachers

The Big Old Spruce Tree

I find it paradoxical that I should pursue studies that involve interrelated connections to the natural world because for most of the first five decades of my life, although I had an affinity for animals, I did not pay a lot of attention to the world of plants and trees. I appreciated their beauty from a distance, but I developed no close connections with them. The following story about one of two young trees that we planted when my mom died provides the context for my rather indifferent lack of awareness, and for the stirrings of a gradual change that led to a deep connection with a big, old spruce tree, and to an advocacy for all plants and trees.

About ten years ago, in a burst of anger, one of my daughter's friends grabbed onto the trunk of one of two young crabapple trees in our front yard and snapped it in half. I was upset because the tree was a commemoration of my mom's death, and I thought we would have to uproot it and replace it. My husband, who has always been connected to Nature, would not even consider removing it, and despite my protestations, he bandaged it up with unsightly cotton strips so that its wounds could heal. For a year, it was an eyesore to our neighbors, but then gradually, it regained its strength, and now it blooms brighter than the other tree. Each year, as it grows taller, its bright red flowers remind me of its plucky spirit. I am ashamed to admit it took me so long to realize that trees, as living beings, have a strong will to survive, and they can be very resilient in times of great hardship.

I tell that story because it serves to illustrate the change that began occurring inside of me ten years ago. Shortly after the incident with the wounded crabapple tree, I found myself on a leave from teaching, and as a way of occupying my time, I

began taking long daily walks in the park behind my house. For the first time in my life, I slowed down enough to become aware of the beauty and the splendor of the trees that lived around me. I noticed that my time with the trees lifted my own spirits, and even when I resumed my busy lifestyle, I made a point of keeping up with my daily walks among the trees. When I retired five years ago and once again had more time, I began following Thomas Berry's suggestions about ways to become more deeply attuned to the spirit of the natural world, and my awareness of the trees began deepening into a gradual change in perception towards all plant life.

Coincidentally, when I started reading Berry's writing, I was just getting settled into our little cabin at Christopher Lake, and I began spending long periods of time just "hanging out" with the spruce trees that surrounded it. Without realizing how it happened, a connection between the largest spruce tree and myself began to form, and I took an interest in finding out more about the gigantic tree. The elderly lady who lived next door told me that the big spruce tree was the mother of many of the other trees in the vicinity, and was probably very old. Feeling a closeness to the big tree, I sat with her for long periods of time over the next few years, and I began feeling a reciprocal exchange of energy with her and a "soul-connection" to her that was deep and lasting. I knew instinctively that we shared a love of our surroundings and a sense of belonging in Saskatchewan's Boreal Forest.

Almost three years ago, however, the tree developed a large crack in her trunk, and my husband began noticing signs that she was preparing to die. Over the next several months, during times when I sat with the big tree, I often reflected on the intersection of life and death. As I felt the struggle that the tree was going

through, I thought about my mom who had struggled in similar ways when her systems began shutting down. I remembered looking into my mom's eyes as the nurses prepared to turn off the machines that were keeping her alive, and feeling her trust in me as she communicated a silent plea to clear the room of all but family when she died. I remembered advocating for my mom; I remembered her peaceful death, and I remembered the feeling of agony when I said goodbye for the last time. Without trivializing the passing of my own mother, I relived many of the same feelings of compassion and deep loss in the last days I spent with the big spruce tree.

On the day that the majestic tree came crashing down, I became physically ill, and my grief was intense. My children, who had all come to bid their farewells, were surprised, and they reminded me of my previous indifference to trees. My little granddaughter seemed to understand, however, and when she told me that the lingering smell of spruce sap was the tree's way of letting us know she was at peace, I knew she was right. To this day, that lasting smell gives me consolation.

I find it difficult to admit that it took me so long to value the intrinsic worth of plants and trees, but I share this story because it contains the lesson that the big old spruce tree taught me before she died. It also shows that if I can develop a compassionate connection to the tree and plant members of the Earth, anyone can. I now know that they have an inner spirit and a will to live that is as strong as my own!

Lessons of The Little Bird

When I first began the practices of meditation and contemplation a decade ago, I found that most of the time that I spent sitting in silence and stillness did not "work" for me, and I rarely experienced any meaningful insights. The following story relates the circumstances surrounding an occasion when I did make a powerful connection to a little bird, and that connection set the context for a related experience that happened at a particularly frustrating time in the research process. Because my experience with the first little bird proved to be so meaningful, I was able to trust in the lessons of a second little bird that happened to cross my path.

Several years ago, as part of my training to become a spiritual director, I was required to take part in a contemplative retreat that was held at the beginning of the school year. As a teacher, I was annoyed at the timing of the compulsory retreat because it meant having a substitute teacher replace me during the first five days of the semester. As a mother, I was even more inconvenienced because I was leaving three teenagers to fend for themselves during their first week back to school.

The silent, directed retreat did not go well despite my best efforts, and as a result, I could not suppress a growing sense of resentment about losing precious days with my students and my family. On the last day, when we were given three hours to journal about what had happened, I sat outside, feeling that I had nothing significant to write. I looked up at the skies in frustration, and in my mind said to no one in particular, "Okay, I did this. So, what was the point?" A moment later, I got my answer. A little bird, which had been flying overhead, suddenly hit the glass right beside me and fell at my feet. The poor little bird lay on the pavement perfectly still, just gasping for breath. I was tempted to pick him up, but I chose rather to just sit with him as he struggled to stay alive. For a time, I thought he would not make it, but

after an hour, I could see that his breathing had become more stabilized. Breaking my seven-day silence, I whispered, "Hi, little birdie," and he turned his head ever so slightly; but then realizing that he was not strong enough to move, resumed his position of stillness, and continued to breath silently. After another hour, I realized that I would soon have to reconvene with the retreat group, so I tried whispering, "Hi, little birdie" once again, and this time, he opened its eyes, turned his head, looked at me confidently, tried fluttering his wings, and flew away.

In that quick moment of flight, the previous seven days began to make sense to me. As I sat quietly contemplating the actions of the little bird, I started to realize the purpose of extended periods of silence and stillness. They are times in our lives when we must quit *doing*, and put our whole energy into just *being*—times when we must relinquish control over the externals in our situations—and when we must give our inner energies and spontaneities the time and the space to organize and regenerate our minds. By the time I came to this realization, I had no time left to journal, but the lesson that I learned from the little bird has stayed with me as if it happened yesterday. As someone who tends to often get too busy, I regularly have to remind myself to slow down and just breathe.

Such was the case a few years ago when I was spending long hours searching for an appropriate methodology to frame my research, and I was unable to give my committee members the answers they were looking for. I had been reading and reading and reading, and I seemed to be getting nowhere. During a time when I was at the lake by myself struggling against the idea of using a conventional interpretive methodology, and feeling a strong urge to just give up on the whole process, I

suddenly screamed out loud my frustration: "What is the point of all of this? What am I supposed to be doing here?" and all of a sudden—right in front of me—another little bird hit the glass. I stopped in my tracks with a strong feeling of *déjà vu*. I put my computer to the side, and gave the little bird my full attention. He had fallen on the deck under a chair with his feet hanging in the cracks of the boards. I could see him fighting for breath, and he opened and closed his eyes as he struggled to gain his balance and stand on his feet. Eventually, he moved a little and caught sight of me watching him—and I assured him that I would not harm him. We stayed like that—just silently watching each other for more than an hour—and I was content to just keep him company. As I looked into his eyes, I felt a connection—a trust—and a search for empathy. But, eventually, my logical mind kicked in, and I thought, "I have to get my camera! I have to have a record of this experience!" I quietly got up, found my phone, and took a few pictures through the glass, but they were not clear. So I carefully opened the patio door just a crack to get a better picture, but as I saw the panic appear in the little bird's eyes, I could tell I had overstepped my boundaries. The little bird flew away before he was ready. I felt horrible!

I reflected on what had happened, and it took me back to the much richer experience with the first little bird years earlier, when I was not worrying about gathering data. I asked myself, "Why had I snapped those pictures?" For months, I had done nothing but read about honoring members of other species, and here I was, in the name of "*Communion of Subjects*" research, objectifying the little bird by taking advantage of his misfortune. What an irony! And I vowed then that no matter what, I was going to find a methodology that would not require me to gather

concrete data—I knew without a doubt that if I were to remain true to my research questions, I could not follow the conventional inquiries that I had studied thus far. The little bird taught me that I would have to find a methodology that would allow me to just live my experiences—and to savour my time with members of the other-than-human world—without trying to interpret or analyze them.

But the little bird reminded me of other lessons, as well. As I pondered the experience, I thought about the occasions in our lives when life demands our full attention—times when we figuratively "hit the glass"—when we have an accident, or get a scary medical diagnosis, or end a relationship, or lose a job—and in those situations, we need to put all of our energy into the process of regaining our balance. During those periods, we do not need someone who tries to rush the process or fix the problem. Rather, we need time, space, and respect, so that things can unfold as they should in their own time. Further, if we exert our power over others to get what we want, we not only take the risk of doing real damage to them, we feel often feel guilty as a result. In the situation between the little bird and myself, I had the power to move into his space, and despite my better judgment, I did just that, temporarily justifying my actions because of the potential benefits for me. And yet, I felt awful about what I had done. This experience brought home the questions: "How often do we exert control and risk hurting others for our own gain?"

I am grateful to the little bird for convincing me to stay with my methods until I found the right inquiry to frame them. My brief encounter with him taught me the lessons I needed to learn!

The Dangerous Gift

This story is a precursor to the next, and it provides the background for a profound shift in consciousness that took me by surprise a year and a half ago. To properly tell the story, I must provide a context that goes back in time to my childhood.

As a little girl, I was timid and anxious. I sucked my thumb, bit my fingernails, and waited until no one was around before I stepped outside. I can't pinpoint a reason for my fearfulness: perhaps it was because my mother was an anxious person, or perhaps it was because I had no brothers and sisters to jostle me around, but for whatever reason, I was scared to take risks, and especially physical risks. My dad once commented that I was the only kid that ever took figure skating for seven years, and didn't fall once. That was me—cautious, safe, and unadventurous.

As I hit the teenage years and throughout my adult life, I developed socially, but physically, I remained anxious. Try as I might, I could not bring myself to abandon my fears to tackle anything that had an element of danger. Consequently, I froze on top of the ski hill, panicked in the ocean while snorkeling, and avoided taking part in competitive sports. I missed out on a lot of fun, and it bothered me. No matter how many talks I had with myself; no matter how hard I tried to will myself to take physical risks, I was incapable of moving past my fear. That fear stayed with me until eighteen months ago—and then something happened, something that shifted my consciousness in a way that is difficult to explain.

It all began when I bravely registered for an immersion group experience in the Teton Mountains of Wyoming led by eco-psychologist and Animus guide, Bill Plotkin. On the very first day, when he realized we were sharing our space with a

family of black bears, Bill armed us with bear spray and instructed how to use it. I was not terribly frightened of the bears because huge clusters of berries were hanging from the trees, and the bears were more interested in the berries than anything else. Nevertheless, it was unnerving when Bill asked us to spend twice-daily solo time in the woods. His intention for doing this was so that we might make connections between our intuitions and inner spontaneities, the energies of the Earth's processes, and the members of the other-than-human world. At night, we were encouraged to record our dreams, which Bill believed were connections to the Earth in themselves, and if we so chose, to discuss the dreams with him the next day.

On the fifth night, I had a powerful dream in which I was at a cabin at a lake with a bunch of people, including a number of my son's friends. I was giving out gifts, and I was delighting in the reactions of everyone who received one. But all of a sudden, as one young man opened his gift, he let out a whoop of excitement, and jumping into his car, raced off down the road in reckless abandon. I was shocked, and I asked my oldest daughter where he was going. She said, "Mom, he's excited because he got the dangerous gift" I became perplexed because I had no idea that any of my gifts had been dangerous, and the last thing I would ever want is to potentially put someone in harm's way. I asked my daughter to take me where he was going, and we left immediately.

Not long into our drive, we saw a woman—a former close friend who had deeply hurt me several years earlier, and whom I no longer trusted. She was dressed beautifully, and I felt awkward because I had not taken the time to even brush my hair. When she saw me, she embraced me and enthusiastically greeted me, but I

questioned her sincerity. She was selling something as part of a fundraising scheme, and internally, I made some negative judgments about the cause that she was supporting. When we left her, we continued down the road. I woke up before we found the young man who went searching for the dangerous gift.

The next morning, I talked about my dream with Bill, and I told him about my fear of danger. He asked a number of questions, and then focused on the woman in my dream. I thought for sure that he would pursue the trust aspect, but instead he said, "I think that woman has appeared to teach you something. What might she be able to teach you?" It didn't take me long to come up with the answer. I said, "She's a free spirit. She is full of adventure. She takes risks all the time. She lives life to the fullest." He nodded his head and said, "Stay with that today."

When it was time to go out into the woods on our own, Bill asked us to be very attuned to the communications of our surroundings, to find a place that seemed to be drawing us in, to introduce ourselves to the other-than-human inhabitants of the place, to talk to them about something that we were struggling with, and to listen for their response. I walked for quite awhile without sensing such a place, but feeling that I had already gone further than was comfortably safe, I plunked down beside a shallow, narrow part of a river that ran through the woods. I rationalized that because I have always been attracted to water, this was as good a place as any to stop wandering. I introduced myself to the stream, talked about my dream, and sat there open and attuned, just listening for quite some time.

Then something unbelievable happened! One bird, and then two—I think they were Grey Jays—started screeching, and flying around me. They kept circling

me, not in a threatening way, but in a way that demanded my attention. Their loud screeching continued, and it was directed at me—it was as if they were telling me to follow them. I wasn't scared of the birds, but I was terrified to follow them, and I told them so. But they were relentless; they just kept circling and screeching, and circling and screeching. Finally, I took off my shoes and socks, and waded through the river. It was cold, the rocks were slippery, and I had to be very cautious, but I made it. I began to follow the birds. I kept talking to them as they led me forward—asking them where they were taking me—my stomach churning, my senses alert, every fiber in my being telling me to go back before I came face to face with a bear—but I continued on—slowly, cautiously, one step at a time. Their screeching continued, beckoning me on, and as I walked, they circled me and called me to keep moving forward. The feeling of dread did not leave me, but my answer to Bill's question—"She can teach me how to be more adventurous, to take risks…" persisted in my mind, and I continued to follow the two birds into a densely wooded part of the forest. And there they stopped. They flew up to the top of a tree and watched me. They were silent. And I stood there for a long time, listening, wondering. Finally, I yelled at them: "Is this it? Is there something I am supposed to see? Is there a reason you brought me here?" No answer. They just sat there, watching me as I watched them, until finally I said, "Can I go now? Have I done what you wanted me to do?" No answer. So I said, "Okay, if you want me to stay, can you say so? If you are quiet, I am just going to leave." Silence. So I turned and walked back to the river, crossed it, and walked back to join the others at the camp.

When we sat down in a sharing circle to talk about what had happened that afternoon, the other group members complained about the incessant noise of the birds. Consistently, they had heard their frantic calls for what seemed like hours, and the noisy birds had made it difficult for them to concentrate on anything else. Several group members expressed curiosity about what had caused the commotion. I sat there silently, not admitting that I was the one whom they had been yelling at.

That evening, I spent a long time reflecting about what I had learned from the birds. I decided that they must have been listening as I talked out loud about my desire to take more risks and to be more adventurous; and as a means of helping me to overcome my fears, they had persisted in leading me safely to what I perceived as a dangerous place. The fact that they succeeded in ways that no one else had ever managed to do was very significant to me. Somehow, they had managed to give me the knowledge that it was possible—not to let go of my fear—but to move past it and go forward—and to retain a memory of the process—so that the next time fear threatens to paralyze me, I will know what to do.

I am aware that this story probably sounds crazy to the logical mind, and it is not one I have told to many people. But both Bill and David Abram, the animist philosopher assisting Bill on this particular quest, have spent their lives communicating with the other-than-human members of the Earth, and they didn't think there was anything strange about it at all. Their life experience has told them that such reciprocal communications happen all the time, but we who are schooled in rational thought have become disconnected from ways of knowing that attune us to the energies and spontaneities of the natural world. From their work with people

from many cultures and walks of life over the past thirty years, and from their study of the mysterious "soul connection" between humans and other-than-humans, they have come to know that all people still have the capacity for developing meaningful relationships and compassionate connections with the other species on the Earth.

Both men too, know that our dreams, visions and intuitions are windows by which we might come to see the interconnections between our embodied spirits and minds and the energies of the Earth. They have become practiced in trusting these sources of knowledge, and they believe that they are as essential as rational logic in making every day choices and discerning major decisions.

My experience in the woods of the Grand Teton Mountains seemed to clear an inner path of consciousness that since then has allowed me to put my fears to the side and embrace the other-than-human world in ways that I would have never dared previously. The trepidations are still there, but they don't paralyze me anymore, and I am realizing that the rewards of experiencing the beauty, wonder, and unseen energies of the natural world—and especially of the forest at Christopher Lake—far outweigh the effort that it takes to subdue my fears. Just yesterday, a big grey wolf crossed my path not more than a hundred feet away from me, and I managed not to panic; he just kept right on walking his way, and I kept right on walking mine.

But there is a second part to this story—a part even "crazier" than the first, and it involves the dream I had on the night of my encounter with the birds, and the experience I had the next day—one that together with the first, has shifted the way I see the world.

The Dream of Humiliation

This is the second part of the story that began with tale of The Dangerous Gift, and it is even more difficult to put into words. It begins with a dream.

Having shared my newly awakened realization that my dream of the dangerous gift had taught me important lessons about dealing with my fear of the natural world, Bill Plotkin advised me to continue paying close attention to my dreams. He told me to record any dreams that stayed with me as soon as I woke up. He had a sense that my dreams of the next few days would have something important to teach me. He was right. That night, I had a terrible dream that woke me from my sleep in a state of despair.

I would prefer not to share details, but briefly, it was a dream in which I suffered intense humiliation as a surreal male presence came into a large, factory-like room and began treating me as an object with no intrinsic value. As he humiliated me in front of others in the room, I could not believe that he had so little regard for my feelings. I had the sense that he knew that I was a worthy person, but he was acting out of his own dysfunction, and it appeared that he had disconnected himself from the ability to feel any sympathy for me. I looked right into his eyes and screamed for him to stop and reconsider what he was doing, but I saw nothing but indifference. The dream became a nightmare that caused intense pain, and I was very shaken when I woke up. Even with the knowledge that the dream had not really happened, I remained very upset.

Flooding through my head were the words of caution a committee member had expressed when I discussed my intention to pursue the immersion experience,

and I realized the wisdom of his concerns. I desperately wished I could talk to my spiritual director about the nightmare, but because that was not possible, I headed out to a clearing beside the river where I knew no one would see or hear me. I cried out to the trees, sobbing to the Universe. I wept until the waves of humiliation had swept through me, and then I stood in silence and just listened to the peaceful sound of the river for a long time. Mysteriously, a calm came over me, and I felt as if someone had understood my pain. I realized that I didn't need a human spiritual director. I had the trees all around me, and they were enough to still my emotions.

But then, it was my turn to listen as the trees silently communicated to me: "Now you know how it feels to be treated as an object. It's humiliating. It's humiliating when others ignore the beauty and the spirit and the integrity that's inside. It's humiliating to be regarded with such indifference." In that moment, I felt a connection of "oneness" with the trees that is impossible to describe in words. As I stood there just looking at the trees, the realization struck me that never before had I thought of objectification as humiliation, but that's what it is. It is humiliating to be the recipient of an act of dominance, selfish disregard, irreverence, or indifference.

As I tried to process what I had just heard, "Now you know how it feels…" I argued with myself that I was only imagining a communication between the trees and myself, but I knew inside that it had really happened. Because it was the last day of the immersion experience, I didn't have the chance to tell anyone in Wyoming about it. Since then, I have not told many people about the dream or the subsequent events that occurred out in the clearing that day because it is rather an unbelievable story. In the Western version of reality, trees do not have conversations with people.

And yet, when I talked to my spiritual director about it, she, who believes in the power of human and other-than-human connections, had no trouble relating to what I described. She told me about several people from history who have had mystical experiences in nature have spoken about the doorway of humiliation that one must pass through in order to feel the unity in all of creation. I do not know if what happened to me was a mystical experience, but it was an experience that is as fresh in my mind as when it occurred, and it is one that I will never forget.

Just lately, I mustered the courage to tell a good friend about my dream, and rather surprisingly, she didn't seem shocked by anything I said either. In fact, almost immediately, she commented, "As I interpret your dream, you were the Earth, and you felt her suffering—inflicted by a dysfunctional male figure who symbolized the disconnected, indifferent source of power in the world." And pondering what my friend had said, I contemplated the suffering the other-than-human members of the Earth endure at the hands of multi-national companies who cut down the forests, or extract oil from the ground, or disturb the symbiotic relationships that exist in the sea. It brought to mind the words of medieval mystic, Hildegarde of Bingen: "Wake up! Don't you see what we're doing to the Earth!" Her compassionate imperative from 800 years ago echoed the message of my dream.

The dream was significant in more optimistic ways as well. It marked a shift of consciousness that has changed the way I relate to the other-than-human world—a shift of consciousness that I would never had predicted when I began this journey. Now, when I am in the woods, I feel as if I belong. I have become much more aware of the reciprocal communications between the other species and myself, and more

and more, I find myself advocating on their behalf. Even in the city, I enjoy a relationship with a family of pigeons who live under the eaves of our garage, and I have become attached to the sound of their "cooing" when I wake up in the morning. The neighbors think it's crazy to let them stay there, but the pigeons are not harming anyone. In fact, their presence makes living in the city more tolerable.

In addition, memories of the experience of connectedness have impacted other aspects of my life. Now that I am able to gently move my fears to the side, I have begun taking more risks, and consequently have experienced a much broader connection to the other-than-human world. In the last eighteen months, not only have I spent hours at a time wandering through the forest at Christopher Lake, I have begun walking trails in other areas where I have experienced breath-taking waterfalls and amazing, ancient formations of rock that have brought to mind the mysterious forces of Nature which have shaped this planet over evolutionary time. I have also bravely plunged into the depths of the oceans where I have learned much about relationships and collaboration and ways of reducing waste from the members of the sea-going world. One such example is that of a turtle cleaning station, in which schools of smaller fish simultaneously feed off of every nook and cranny of a large sea turtle, thereby facilitating his hygiene while at the same time, filling their bellies. Nature has much to teach those who learn how to pay attention.

As I mentioned earlier, when I began this journey, I imagined a different shift of consciousness than that which actually happened. I am grateful for the profound shift that did occur—away from fear, and towards connection—a shift that will serve me well as I continue to learn how to live compassionately on Earth.

The Human Teachers

A Random Meeting with Synchronous Connections

Shortly after returning from Wyoming, I met with my committee, and I spoke enthusiastically about the desire to undertake additional immersions organized by wilderness guides, but one of my supervisors challenged me to continue the process of honing a deeper awareness to the mysteries of the natural world without supporting a venture involving consumerism. Within a few months, I had an opportunity to respond to her challenge, and to come to a deeper understanding of what Thomas Berry means when he says that humans must re-invent themselves as a species. As a result of experiencing a random connection with an incredible lady in Hawaii, similar insights to those I had gleaned in Wyoming arose from the reciprocal exchanges of energy between another human and myself. This realization incited for me an attunement to the invisible energies that the mystics and the Indigenous Elders have spoken about for centuries and that quantum scientists and depth psychologists are now discovering. I am just beginning to understand that these unseen energies are the threads of connection, local and non-local, that weave humans together as a species, and in turn, serve to connect the human species to the other species on the Earth.

Fourteen months ago, my husband and I took a vacation to Hawaii, and we enjoyed ten glorious days in the sun. One day, as we were walking along the beach, I noticed a lady about my age talking to a pair of ducks who were situated near a picnic table where the lady was cleaning up after a meal she had served to several people. Amazed at how tame the ducks seemed to be, I stopped, and the lady came over and started to tell me about her long-standing friendship with them. As the conversation ensued, she began to tell me the story of her life.

Five years earlier, she and her husband had come to Hawaii from Florida, where until then, their lives had followed a similar pattern to my husband's and my

own—she and her husband had owned a house, worked in their prospective jobs, educated their kids, and saved for their retirement. But in the economic crash of 2008, everything changed for them. The lady had been permanently laid off from her job, and been given a small severance package. Her husband, who in the eighties and nineties had enjoyed a lucrative career as a time-share salesperson, suddenly found himself with no clients and no source of income. Their house dropped in value by several hundred thousand dollars, and they were forced to dip into their savings just to get by. When her husband's company offered him a transfer to Hawaii where time-share vacations were still selling, they had no choice but to re-locate. It broke her heart to leave her elderly parents, her kids, and her grandchildren; to sell her house for a fraction of what it was worth, and to move to a completely different part of the world, but at the time, it seemed their only option. For the past five years, her husband had been working steadily, but she had been unable to find a job, and the cost of renting an apartment in Waikiki had depleted most of their savings. Consequently, they had become homeless. While her husband worked long hours during the day, she lived in the park by the beach where she cooked meals for her husband and others who had no food, had long conversations with the ducks, and greeted tourists who passed by. Every evening, she packed up all of her belongings and moved to a spot where she and her husband were allowed to sleep in a make shift tent that had to be taken down each morning. They had enough money to survive, but she confessed she found it difficult to be optimistic in her situation.

In the short time that I spent in her company, I was impressed by the friendliness and warmth that she exhibited to the many people who stopped by her

picnic table. Her openness reminded me that a positive attitude is a choice, and self-respect comes from much more than one's job, a house, or an accumulation of money. I often wonder if our situations were reversed, would I have the strength of spirit to endure the changes to which she had adapted—the loss of connections to family, home, possessions—with the same inner resilience that she exhibited? Would I have the strength of character to live my life with the dignity, grace and generosity that she exemplified? Without knowing it, she encouraged me to be a more open and compassionate person; and long after I had returned home and back to my research, I realized that she had given me a broader comprehension of Berry's terms *shift in consciousness*, *communion of subjects, non-local connections* and *reinvention of the human at the species level.*

First of all, our chance meeting triggered the realization that a shift in consciousness does not have to be a dramatic insight that results from an intense immersion experience, but rather it can involve little connections that gradually change the way one sees the world. Secondly, I came to recognize that creating a communion of subjects can be as simple as making people feel welcomed and respected, building community among strangers, and acknowledging the inner spirits of those who sit at one's table. Thirdly, I began to realize that if one consciously makes an effort to become attuned to the energies of another, the encounter potentially broadens both perspectives and creates an invisible, local or non-local thread of connection between two people, even if they live in different parts of the world. And fourthly, the experience emphasized for me that we are all connected as humans—and we should all be working together instead of fighting

with each other. As members of the same species, we have far more similarities than we do differences, and we humans, should be reinventing ourselves as a species so that we might synchronize our energies to work towards sustainability and justice.

Since the chance meeting with the lady in Hawaii, I have been consciously honing my awareness to the possibilities for making everyday connections with other human beings. I am amazed at how many times I am thinking about someone in a local or non-local place, and he or she suddenly gets in touch with me. I am also surprised at how many times strangers from other places in the world have briefly crossed my path and shared their stories for no apparent reason other than they sense that I am interested in what they have to say. In the last few months, people from Poland, Australia, Serbia, Croatia, Germany, and Sri Lanka have spontaneously initiated conversations with me in unlikely places, and although I am aware that I may never see them again, their stories will stay with me. I am coming to understand that the possibilities for making such synchronous connections have always been there, but perhaps until now, I have just been too busy or too unaware to access the invisible shared energies that have the potential to shape us into more compassionate members of the Earth community.

My meeting with the special lady from Hawaii did not incite a profound shift of consciousness, but I tell this story because it did trigger for me many real-life applications of the theoretical concepts explored in my scholarly research. Writing this story also helped me to more deeply understand Thomas Berry's vision for the role of the human species in bringing about a *Communion of Subjects* on the Earth.

My Dad, My Hero: A Story of Intergenerational Love

Every once in awhile, an event arises in our lives that at the time seems to be a major distraction from something we consider to be more important, but then paradoxically, turns out to teach us a life-changing lesson. Such was the case last fall when I had cleared my schedule in order to do nothing but write. As it turned out, it was fortuitous that I had a block of time at my disposal, but it was not to be dedicated to my studies. Rather, it would be used for the task of "downsizing" as my dad prepared to enter a new phase of his life. Interestingly, this time away from my writing became integral to my inquiry process. The hours spent in deep conversation with my dad filled in essential details about my paternal history that I had never known, and they gave me the opportunity to respond to Berry's challenge to more fully explore my own story within the greater story of intergenerational evolutionary emergence.

Last fall, I had the opportunity to spend thirty days almost exclusively with the incredible man who brought me into this world, and as I reflect on those days, they have become some of the most precious of my life. My dad and I have been very close since my mom passed away fourteen years ago, but sorting through old photos, cards and newspaper clippings with him forged an invisible bond between father and daughter that is unbreakable. As we shared mementos from his past, some of which I had never seen, we laughed together, we cried together, and we often shook our heads at the chaotic ways my mother had stored her treasures. My dad trusted me with his possessions—more than he trusted anyone else, and he let me know it—not by any words, but by the way he allowed himself to be vulnerable when I was around. He knew that I would not be careless with the memories of his life; what he didn't know was how much his trust meant to me.

During that month, my dad shared more of his story than I had ever heard before. I knew that neither of my parents had experienced happy childhoods, and both of them were ashamed about the conditions under which they were raised, but when I was growing up, my dad especially never spoke about his mother or his father. So, last fall as we were sorting through his memories, I asked him, "Dad, with your background, how is it that I have enjoyed the privileges of a middle-class upbringing and a good education with such a caring father?" He thought about it for a few minutes, and then came up with an unexpected answer: "My grandpa, the war, your mom, and prayer." In the last eighteen months, during our daily visits, he has filled in the details of his answer, and I have been able to piece together a story that has given me a better idea of who I am and where I came from.

My dad was born 88 years ago to a young woman named Wynona. Her parents had settled in Saskatchewan when my dad's grandpa got a job shoveling coal for the railroad, and they and their six children lived in a one-room house. The family had its share of trials—poverty, lack of food, and sickness. As a child, Wynona suffered from a particularly bad case of meningitis, which almost took her life. But they managed until one day, a tragedy struck and changed the family dynamic forever. The oldest son was cleaning a gun, and he accidently shot and killed his younger brother. Wynona's mother, who blamed her husband for letting the boys use the gun, was shattered, and she went back to her own family, taking her two youngest children with her. Wynona, her older brother, and a younger sister stayed with their dad. But conditions were tense and money was scarce, and the fourteen-year old Wynona longed to get away from the sadness that enveloped her father's

home. When an advertisement appeared in the local newspaper requesting a governess in a widower's residence, Wynona begged her father to let her apply, and she got the job of caring for three children whose mother had died.

According to my dad and his siblings, no one knows what really happened while their mother was a governess. The story they have pieced together is that Wynona gave birth to four children—three boys and one girl—in her teenaged years. Her first son died in childbirth; and in subsequent years, my uncle, my dad and my aunt were born. From that point on, the story becomes unclear. Wynona's version is that the widower signed the boys' birth certificates and offered to marry her, but when my dad's grandfather, a devout Baptist, visited and found her pregnant, he threatened to throw her employer in jail; and as a result, Wynona had no choice but to leave the widower's house. The widower's son wrote a book that told a different version of the story in which the widower did not father any of Wynona's children and did not offer to marry her. Years later, when my dad read the book, he was confused, and he got in touch with a lady he presumed to be his half-sister, but she would not speak to him. At that point, my dad, who had never tried to contact the man he believed to be his father, decided that knowing the story was not worth the feelings of rejection that might result, and he let the matter drop.

In any case, at twenty years old, Wynona had no education, no money, and no way of supporting her three young children. She rushed into a marriage with a man who drank too much and was cruel to her children. My dad can remember being beaten every day, and he still talks about the incredible streak of "meanness" in his step-father. The family moved around a lot, and in his first few years of school,

my dad had to repeat grade one because it was offered only in French, and he had to learn how to write with his right hand, because he was strapped for writing with his left. When Wynona and her new husband began having children of their own, the cruelty of the step-father increased, and my dad's grandfather could no longer stand by and watch his grandchildren endure such beatings, and so he took them home to live with him. But by then, he was retired and earning only twenty-five dollars a month, and before long, he had no choice but to put the two boys in an orphanage because he could not afford to feed them. My dad was only eight years old when he said goodbye to the only person he believes ever loved him as a child. His grandpa was convinced that meningitis and childhood trauma had affected Wynona's mind, and my dad remembers him saying, "No matter what she does, Bill, she is still your mother," whenever my dad expressed anger about his mother's lack of care for her children. In his subsequent visits to the orphanage, his grandpa always encouraged my dad to be loyal, truthful, and compassionate in all of his relationships, and the older man's advice stayed with him. To this day, he credits his grandpa for instilling the deep values that have shaped the course of his entire life.

In the orphanage, which was run by Catholic priests and nuns, my dad excelled academically, but physically, he was small for his age, and emotionally, he believed he had to stay strong for his older brother, who suffered from loneliness and abandonment. Luckily, the two boys had each other. When my dad was twelve and in grade seven, his kidneys failed, and during the several months he spent in the hospital, he was given the last rights. When he recovered, his doctor, who was an

atheist, pronounced it a miracle, and subsequently became a man of faith. His doctor's conversion experience had a memorable effect on my dad.

Because of his high academic standing, my dad was recommended to grade eight, but he declined the offer to attend high school because at the time, high school was only an option to those who were prepared to commit to the priesthood. Because he did not want to be a priest, my dad moved out of the orphanage, and at fourteen, he joined his brother in the workforce in Prince Albert. My dad became a messenger boy for the telegraph office, and eventually, began saving money, as did my uncle. When their sister left the orphanage a few years later, their mother reappeared in their lives, but according to my dad, she only stayed long enough to ask them for money, and to take their sister away to live with herself, her third husband, and the children who were living with them.

My dad turned eighteen in 1944, the last year of the Second World War, and as soon as he was able, he joined the Navy, where despite his lack of education, he passed the qualifying test for training in wireless communications. He spent a year working on ships in Nova Scotia and Bermuda, but unlike the other men, he did not look forward to times "on leave" because he had no where to go. It was when the others were going home to their families that he can remember feeling most alone. But he credits the war for giving him the opportunity to finish his high school education, which he believes changed the course of the rest of his life. As an ex-serviceman, he qualified for high school correspondence classes, and within a year, he had written his grade twelve exams, and enrolled in university. He enrolled in Commerce at the University of Saskatchewan, but was unable to complete his

degree because he had depleted his savings. With his communications training, however, he was offered an excellent job in the telecommunications department of the Canadian National Railway, and he began working in Winnipeg. Once again, because he had no family, he worked all of the holidays so that the other employees could spend them with their families.

To this day, he regrets not finishing his university degree, but at the same time, he credits the war with giving him the opportunity to continue his education, and providing for him the option to pursue further learning in later years. Despite the fact that he has always loved learning and undertaken many courses of study on his own, he chose not to return to university as a young man because by then, having settled in Winnipeg, he met, fell in love with, and married my mother. Theirs was a love story that for my dad, made up for the lack of affection during his childhood. He cherished my mom, and the two of them forged a life together. They transferred to Churchill, Manitoba, where they lived until I was born, and then moved to Melville, where they adopted my sister ten years later. They relocated to Saskatoon when my dad retired in 1986. My dad was a loving, considerate husband and continues to be the most devoted, affectionate father that one could ever hope for. I can't help but wonder, how, with his background, did that happen?

Besides his grandpa's wisdom, his own life learning, and his love for my mom, his answer would be that he believes that there is a plan for each one of us that is much greater than any of us can understand. Prayer has been a big part of his life for as long as he can remember, and he has always had the feeling that he is not alone. He credits his faith for giving him strength and courage in times of darkness

and despair. And perhaps most importantly, it was his faith that first attracted him to my mother, who even as a young girl, stated that she wanted to marry a man with strong convictions and trust in a higher power, a man who was different from the alcoholic father who caused her much embarrassment when she was a child.

The last thirty years have not been easy for my dad, but one would never know it by his positive attitude. He suffered two brain aneurisms shortly after he retired, and in his mid-sixties, lost the ability to drive a car. That, he says was "the equivalent of having his legs cut off," but he made the best of it, and he joined a walking club where he met several new friends. He lost my mom suddenly when they were only 73, and her death devastated him, but the many prayers he says for her each day keep her close in his heart. He also lost his older brother who had remained very close, and a half-sister whom he had just found. Recently, saying goodbye to his home and his independent style of living has been tough, but he has taken it his stride, and he is making a positive impact on people in the complex in which he now lives. I am told that his table has the loudest laughter at suppertime.

In the year after my mom died, my dad shared with me that he never had a birthday party, and so on his 75th birthday, I gave him a surprise party. That party has continued for fourteen years, when annually, his family and friends gather to celebrate his life. Over the years, his friends regularly remind him, "Keep breathing, Bill" because they want to celebrate with him for years to come.

Interestingly, my dad often talks very matter-of-factly about dying, and although he has been given the last rights at least six times in his life, it seems that there is still a purpose for him right where he is at the moment. My three children

would all say that their grandpa is one of their best friends, and my two grandchildren have already begun to realize what a special person he is. Both his grandchildren and great grandchildren know that he unconditionally accepts, loves, and honors them just as they are, even if he doesn't sometimes agree with what they are doing or saying. He constantly encourages them to nourish their faith, to live with integrity and compassion, to work hard, and to pursue their educations. He has modeled for them a love of learning, a trust in prayer, and a belief that we all have the choice to remain positive, no matter what life throws at us.

Writing this story has helped me to realize the connective power of intergenerational love. In a brief time with his grandpa, my dad learned how to become the kind of grandpa that has made an incredible impact on his own grandchildren and great grandchildren. Someday, they will talk with reverence about their grandpa to their children and grandchildren. It seems that such love is an unbreakable thread that binds families together throughout time and space.

From the beginning of the downsizing process, my dad has welcomed the opportunity to tell the story that he has kept close for almost a century, and he has encouraged me to include it in this anthology. I will be forever grateful for having undertaken research that has emphasized the importance of knowing one's story and one's place in this ever-emerging world. Had I not pursued this study, I might never have asked my dad important questions about the details of my story, questions to which the answers have helped me to more fully connect to the past and embrace the possibilities of the story that will continue into the future. Thank you dad, for being a great teacher. You are my hero!

Concluding Story: The Place of Great Learning

The Little Cabin in the Woods: The Place Where I Belong

As I have prepared this anthology, I have chosen this to be the last story because the forest at Christopher Lake has provided the space by which I have undertaken my deepest learning during this inquiry. I believe the interrelated story of how the little cabin and I came to be connected is one of synchronicity, and it hints at a mysterious implicate order that works to connect the unseen, non-local energies underlying everyday events. My husband and I had fallen in love with Christopher Lake when we were first married, and we had rented cabins there when our kids were little. We had tried many times to buy a cabin, but always it was out of reach financially, and so we eventually bought one at another lake, and for a time, it proved to an excellent move. We came to love the new lake; the location gave our family the chance to spend the summer with our good friends, and it was more accessible for my husband to go to and from work. Just as the kids were leaving home and my husband retired, however, we bumped into someone we had not seen in 15 years, and he said, "Hey, there is a cabin for sale at Christopher Lake that you might be able to afford." Immediately, we drove to see it, and my husband proclaimed it to be a "tear down," but I didn't care. I said, "It's Christopher Lake!" The rest of this story narrates how that place in the forest came to be integrally connected to the unfolding of my doctoral research process. I tell it not to convince anyone that an implicate order does exist, but because I think it is a fitting way to end this anthology, and to pay tribute to my special place in the woods.

The spring of 2009 unfolded as a strange set of events. After seven years of commuting back and forth to and from Edmonton, I was finally finishing my Master's degree, and in early April, my supervisors suddenly began urging me to pursue a doctorate. Intrigued, I began to imagine the possibilities of retiring from teaching and continuing my education, and I believed that as a result, I had a dream that was significantly connected to my musings. In the dream, I was about to step off

of the curb into a busy intersection with cars zooming by when my son pulled me back and held onto my arm until it was safe for me to cross to the other side. I interpreted the dream as a message that I should stay put and wait to retire from teaching, and so I put thoughts of pursing a doctorate to the side. In the middle of April, however, when I got an e-mail from the Educational Foundations Department at the University of Saskatchewan stating that they had a place for one "special-case" doctoral candidate, a little niggling of interest once more began to gain momentum. After a period of discernment, I again pushed thoughts of retiring to the side because I was immersed in teaching a process-relational, inter-disciplinary class called ACE that I had developed and researched in an inner city high school, and I decided that I was not yet ready to hand it over to someone else.

In late April, however, the administrator of the high school announced a major fall renovation, and shortly thereafter, my doctor wrote a letter stating that because of environmental allergies, I would have to be transferred. All of a sudden, I had no choice but to leave my ACE class behind and move to another school. This news had big impact on my professional life. With a three-year record of no dropouts, no attendance or behavior problems, and the avid engagement of previously at-risk teenagers, I was convinced that I was onto something with the ACE class, and I was upset to hear that I would be transferred during a time that I believed was critical for the future of the class.

In my personal life, I was in the middle of adjusting to big changes, as well. My husband had recently retired, and we had just purchased the little cabin at Christopher Lake. For me, as a very cautious person, buying that cabin was one of a

very few times in my life when I gave no thought to the practicalities of the situation, and I made a "heart" decision on the spot. As it turned out, my husband went along with me, and through a set of very unlikely circumstances, we managed to sell one cabin and buy the other without a hitch.

So we already had purchased the little cabin when the strange events connected to my future began happening simultaneously in 2009. When my heart repeatedly urged me to retire early, I flashed back to my dream about waiting to cross the intersection, and I wondered if the timing was right. Because my son had been a key figure in the dream, I asked him to go for a walk with me so that I could seek his advice. As we walked the bridges in Saskatoon, he assured me that I was safe "to go." He said, "Mom, it's your turn. If you do anything more for your kids, you will have done too much!" And for the second time within the space of a year, I put monetary concerns on the back burner, and followed the stirrings of my spirit. Financially, it was unwise, but nevertheless, I wrote my letter of resignation to the school board, and sent in my application to the university. I have never looked back!

When I began my doctoral program, I wasn't at all sure which direction to pursue in a new arena of learning. I remember clearly my first meeting with Dianne Miller, who became one of my two supervisors, and as I listened to her explain the course of studies, I remember feeling, "It is no accident that I ended up in this place at this time." And then, when Bob Regnier, who became my other supervisor, introduced me to Thomas Berry, I began to envision the direction that my research might take. Immediately, I made connections between my previous work with ACE and the new landscape of ecologically based education. I quickly realized that I had

come to the perfect place to undertake research that would give me the background to advocate for education that incites connection and compassion. What struck me most deeply in my first impressions of my new department was that each faculty member I met was authentically "walking the talk" of social and ecological justice, and I felt grateful for the opportunity to walk alongside these wonderful mentors.

As I began delving into the academic world of education for ecological sustainability and social justice, the challenges of Thomas Berry resonated with my deep desire to live more sustainably, and it seemed as if the little cabin in the woods had come into my life just as I was ready to undertake a shift in my way of seeing the world. I took full advantage of the opportunity to connect with nature in the forest setting of Christopher Lake, and I designed my research inquiry in such a way as to respond to Berry's challenge to undergo a radical shift in consciousness. The inquiry has taken me in directions that I could never have imagined when I began, but I trust every connection I have made has contributed to the whole of the experience.

Poets and mythologists from every age and culture tell us that each of us has a special place on Earth—I have come to believe that my place is Christopher Lake. People have asked me, "What is it about Christopher Lake that is so special to you?" I cannot answer that question with words. I can only say that is a feeling for a place that began as a connection of spirit and soul from the first time I visited the lake; it is a connection that persists non-locally throughout the periods of time and space when I am away from it; and it is a connection that has deepened and intensified in the years since I have begun my research. It is the place where I belong.

CONCLUDING REMARKS

I have come full circle to the place from which I began: *The place of our calling is where our deepest gladness and the world's hunger meet* (Buechner, 1973, as cited in Plotkin, 2003, p. 39). In the spirit of Thomas Berry's personal journey of lifelong learning, I hope that this doctoral research is only the beginning of a new segment of my career as an educator.

As I conclude this part of my journey, I am aware of much evidence that indicates our Earth is not in a healthy state, and barring a major natural catastrophe in our Western world that forces us to change everything about the way we live our lives, changes will not happen overnight. But, if is there is such a thing as a *Great Turning* (www.joannamacy.com) that incites radical transformation in the Western world, I believe that we must provide the type of education that enhances such a turning towards a more Earth-centred way of life. In my opinion, education that fosters compassionate and connective ways of relating to members of the human and other-than-human species, of serving our communities, and of living sustainably on the Earth, is the education that will energize such an individual and collective movement. I believe that we as educators have a responsibility to prepare ourselves and to ready our prospective students for a future that is radically different than that of the present day. Regarding education in the coming age, I agree with the words of Maggie Borger, an Australian educator whom I met at one of the Thomas Berry Institutes in Oakland, California, who states: "People of the future will need a strong sense of the wholeness of *all-in-self* and *self-in-all*" (personal e-mail correspondence). I am convinced that the development of the perceptions of

wholeness and inseparability to which Borger refers are linked to pedagogy that is designed to integrate the artistic, intuitive, spontaneous, contemplative, compassionate—and logical, rational, and spatial capacities of their minds.

This dissertation represents the outcomes of an almost five-year learning process and a personal heuristic response to Thomas Berry's challenge to come to a holistic scholarly and experiential understanding of the statement, *The Earth is a Communion of Subjects and not a Collection of Objects,* (www.thomasberry.org). The learning of this inquiry has not only provided me with a foundational basis for undertaking a shift in my own consciousness, it has motivated me to express the integration of my story within the larger story of the unfolding Earth community in my artistic work, and it has inspired me to continue learning as I begin the exciting tasks of undertaking a continued shift of consciousness and applying this research to the processes and practices of education.

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Appendix A: Methods of the Inquiry

Soulcraft Methods

1) Dreamwork: journaling of dreams, deep imagery, use of symbols.

2) Symbolic artwork.

3) Personal myth work, storytelling of one's own experiences.

4) Practice of sensitive listening, sacred speech and ritual silence.

5) Experiencing soulful music, poetry, literature and film.

6) Practicing solitude.

7) Discovering nature as a mirror to the soul.

8) Walking and Wandering in nature.

9) Shadow work.

Contemplative Methods

1) Practice of Inner Hygiene: Strengthening Attention, Sustaining Resolve, Cultivating Equanimity, (the practice of holding conflicting emotions in a quiet space) Positivity, (the practice of looking for the positive to see the good in all) Openness, (the researcher takes an inventory of his or her prejudices and practices opening oneself up to changing for the better).
2) Practice of Cognitive Breathing (sensory meditation). A rhythmic movement between focused concentration and open awareness in sensory meditations involving aspects of nature such as light, air, water, earth, and fire.
3) Practice of Contemplative Cognition. This involves setting aside familiar ways of knowing through the practice of meditation, and allowing insights and new ways of knowing to break through.

4) Journaling of outer and inner phenomenological experiences of practice of contemplative methods:

(a) Journaling of thoughts, feelings, sensations (Shapiro, 2008).

(b) Stream of consciousness writing (Cameron, 1992, cited in Zajonc, 2009).

Other Methods

1) Photographic journaling.

2) Engaging in adaptations of embodied writing, as developed by Anderson (2002, 2004, 2006): True-to life vivid depictions of phenomenological experience; Internal (imaginal, perceptual, kinesthetic) and External (sensory) feelings; Expressions of inner voice; First-person narratives; Poetic or artistic images.

3) Seasonal participation in full moon *Inipi* rituals.

4) Walking with Sacredness Dedicated to the memory of Thomas Berry (Adaptation and Extension of Rowe, 2011) in the following ways:

One: Bowing to spirit—Open awareness in respect for all life.

Two: Sensing spirit—Open sense awareness, paying attention to the ordinary.

Three: Childlike wonder (adaptation)—Any of above, with child or letting child lead.

Four: All my relations—Awareness of other beings, and relationships.

Five: Nature Quest, 4-8 hours (adaptation)—Silent, solitary wandering.

Six: Gratitude (adaptation)—Silently honoring of all in the natural world.

Seven: Night Walking, looking up at the wonders of the skies.

Eight: Dawn or dusk Walking, experiencing transitions of day and night.

Nine: Audio Walking, recording specific sounds in the natural world.

Ten: Walking a labyrinth, experiencing rhythm of outer and inner movement.

Appendix B: Examples of Devastation on the Earth (Hathaway & Boff, 2009)

- Every minute of every day, we lose an area of tropical forests that equal the size of fifty football fields.
- Every minute, one square kilometer of land is converted into desert.
- Every minute of every day, we burn a quantity of fossil fuel that took more than six days for Earth to produce through capturing sunlight.
- Every year, fifty thousand plant and animal species disappear due to human activity, at a rate of 10,000 times greater than ever before.
- Every year, a thousand new man-made chemicals are created, and in the past 50 years, 70, 000 synthetic chemicals have entered the air, water and soil.
- Every day, one million tons of hazardous wastes are produced.
- Every minute, fifty people die of pesticide poisoning.
- Radioactive wastes, which are dangerous for 250,000 years, continue to be produced even though there is no safe way of disposing of them. There are over 1800 tons of plutonium in the world, and it would only take eight kilograms to produce an atomic bomb that could wipe out a major city.
- Human beings use 40 percent of all energy available on Earth, and if they continue on the same path, within 35 years, they will take 80 percent, leaving only 20 percent for all the other animals on Earth.
- Eco-systems are now trying to adjust to triple the amount of carbon than they can naturally absorb, and the Earth's capacity for removing carbon dioxide from the air has been significantly reduced. As a result, the climate is changing, and weather disasters are becoming more common.

Appendix C: Photos of the Knitted Mandala Shawl

Winding the entire length of merino wool from the skein

Figure 14. Skein of Wool

Just about to begin with four tiny bamboo needles

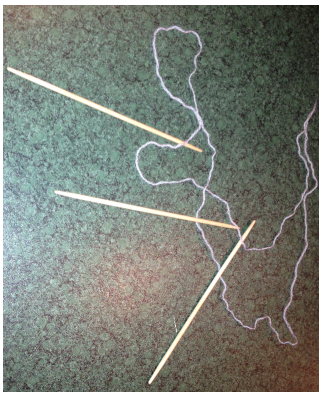

Figure 15. Beginning at the Centre

Increasing the stitches

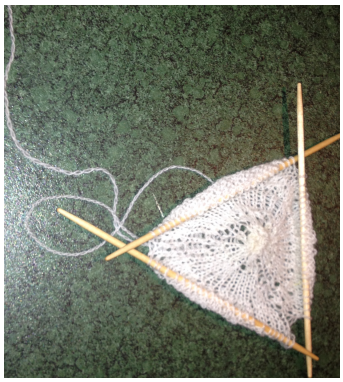

Figure 16. Three-Dimensional Figure

Moving to Circular needles and establishing first concentric pattern

Figure 17. Counting Stitches

Expansion into the second pattern

Figure 18. Mathematics Skewed

Expansion Continues…but "Deconstruction" Necessary

Figure 19. The First "Extinction"

Figure 20. The Completed Mandala Shawl-30 inch Radius